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Volume XLI FEBRUARY 1933 Number 1

The Expansion of Bank Credit. I. *James W. Angell and Karel F. Ficek* 1

Richard Carmarden's "A Caveat for the Quene" (1570) *John U. Nef* 33

Treatment of Credit in Contemporary Monetary Theory *Lauchlin Currie* 58

The Customers' Loan Market and the Open-Market Supply of Loanable Funds *J. Marvin Peterson* 80

Frisch on the Measurement of Utility *Henry Schultz* 95

An Unpublished Letter of Ricardo to Malthus *Jacob Viner* 117

Book Reviews 121
(See inside front cover)

Books Received 143

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BOOK REVIEWS

Seager, *Labor and Other Economic Essays*, edited by Gulick, (Persons), 121.—Field, *American Participation in the China Consortiums* (Huntington Wilson), 123.—Mason, *The Street Railway in Massachusetts. The Rise and Decline of an Industry.* (Lewis), 125.—Moulton and Junichi Ko, *Japan: An Economic and Financial Appraisal* (Benham), 127.—Scott, *The Cultural Significance of Accounts* (Bryant), 129.—Obolensky-Ossinsky, Ronin, Gayster, and Kravel, *Social Economic Planning in the Union of Soviet Socialist Republics: Report of Delegation from the U.S.S.R. to the World Economic Congress in Amsterdam, August 23-29, 1931* (Knight), 131.—Cummins, *The Labor Problem in the United States* (Berman), 132.—Brady, *Canada* (Underhill), 134.—Saposs, *The Labor Movement in Post-War France* (Estey), 135.—Gregory, *The Gold Standard and Its Future* (Simons), 137.—Arendtz, *The Way out of Depression* (Hartkemeier), 138.—Himes, *A Guide to Birth Control Literature* (Hohman), 139.—Renaud, *Groot- en Kleinhandelsprijzen in Nederland en Belgie* (Gideonse), 139.—Ohno, *Sozialökonomische Theorie des Geldes* (Ellis), 140.—Helbing, *The Departments of the American Federation of Labor* (Cooper), 140.—League of Nations, *Statistical Year-Book of the League of Nations 1931-32* (Gideonse), 141.—Grinko, *The Five-Year Plan of the Soviet Union; a Political Interpretation* (Pasvolsky), 142.

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THE EXPANSION OF BANK CREDIT. I

Introduction. The problem; definitions, page 1.—I. The expansion of a single bank, page 3.—II. The expansion of the aggregate of commercial banks, page 15.—III. Observations on the single-bank and system coefficients, page 26.

TO FOLLOW IN NEXT ISSUE

IV. The effect of central banking; the ratio of commercial bank credit to gold.—V. Observations on the member-bank system coefficients.—VI. Summary; conclusions.

This paper treats the problem of determining the maximum amount by which bank deposits can be expanded on the basis of given bank reserves. The conclusions reached by Professor Phillips, in his volume on *Bank Credit*, are familiar to all students. We offer here a more detailed treatment, which yields rather different conclusions.

In a society which uses only bank deposits as its medium of exchange, in which there is only a single bank, and in which no "reserve" requirements or traditions exist, the problem here under consideration would not arise. No necessary checks whatever would operate against either the indefinite expansion or the indefinite contraction of bank credit. In actual modern societies, however, banking operations are influenced and limited by the existence of legal or customary minimum reserve requirements; by the fact that these reserve requirements are expressed directly or indirectly in terms of media of exchange other than bank deposits, but which circulate side by side with bank deposits and serve interchangeably as "money"; by the fact that there are many

banks, instead of only one; and by the fact that the monetary and banking systems of the several countries maintain extensive though variable relations with one another. Our problem here is to examine the way in which these limiting factors work, and to estimate the magnitude of their effects.

We begin with the case of a single isolated society, highly integrated and sensitive in its internal economy. We endeavor to discover the maximum amounts by which, first, a single commercial bank acting alone, and then the aggregate of the commercial banks, can expand loans and created deposits on the basis of surpluses of reserves and deposits of new cash. The principal symbols used are as follows:

D_1: Demand deposits of a given commercial bank, measured *before* a given loan expansion takes place.

D_n: Aggregate net demand deposits of all the commercial banks in the system,[1] again measured *before* a given loan expansion takes place.

s: The relative size of a given commercial bank, measured by the ratio of its deposits to the deposits of the whole commercial banking system; $s=\frac{D_1}{D_n}$. This ratio is computed *before* a given loan expansion takes place.

L: The net proceeds of a new loan; that is, the amount by which deposits are initially increased by the new loan.

l: That part of L initially available for actual use; that is, L minus the balance, if any, which the bank requires to be left on deposit.

b: The percentage of the net proceeds of a new loan required to be left on deposit; $L-b\cdot L=l$, or $l=L\cdot(1-b)$.

h: The percentage ratio between cash in actual circulation (cash outside all banks, or only outside central banks and treasuries, as indicated) and net demand deposits of all banks in the system (total net deposits, or only net deposits actually available for use, as indicated). In the earlier stages of the discussion, h is assumed to remain constant.

r: The minimum "required" reserve ratio of the commercial banks, whether legal or merely customary. This ratio may, of course, be different for different banks.

c_1: The amount of cash drawn from a given bank into other banks through adverse clearing balances, in consequence of an increase in the deposits

[1] Excluding savings deposits and other true time deposits. In the United States, a large proportion of what are now classed as time deposits are in effect demand deposits.

of the first bank. This drain may be called "the primary drain on reserve cash."

c_2: The amount of cash drawn from a given bank into outside circulation, in consequence of an increase in its deposits. This drain may be called "the secondary drain on reserve cash."

c_3: The additional amount of cash or other reserves which a given bank must hold, in consequence of an increase in its deposits. This may be called "the tertiary drain on reserve cash."

c: The amount of cash representing surplus reserves in a given bank; that is, the excess of reserves over minimum requirements. If a given bank, which before an expansion of its credit held surplus reserves equal to c, now expands its loans to the maximum possible size, this surplus reserve c will be entirely absorbed by the primary, secondary, and tertiary drains, so that c will conform to the equation, $c=c_1+c_2+c_3$.

C: The surplus of reserves over minimum requirements for the banking system as a whole. C_2 and C_3 are similarly cognate with c_2 and c_3. (For the system as a whole, interbank drains cancel out.)

e: The coefficient of the maximum expansion of bank deposits which can be effected on the basis of a given *surplus of reserves*.

f: The coefficient of the maximum expansion of bank deposits which can be effected on the basis of a given *deposit of additional cash*.

I. THE EXPANSION OF A SINGLE BANK

Take, first, the case of a single commercial bank, and assume that it alone expands its loans, while the other banks in the system do *not* expand theirs. Assume also that the society as a whole is in a fairly stable economic and financial position, so that large disturbances do not have to be taken into account; and that the proportion between cash in circulation and net demand deposits (the term h) remains constant. Finally, assume that commercial bank reserves are simply "cash." The question of possible relations with a central bank can be disregarded for the present.

We shall first suppose that the initial increase in the given bank's loans is of known size, and shall calculate the drain on its cash reserves which is produced by this loan expansion. When that has been done, we can then use our findings to solve the opposite and more important problem of determining what is the maximum loan expansion which can be effected on the basis of a given surplus of reserves.

1. When the given bank expands its loans, the granting of these

new loans will increase the deposits of the bank by a total amount L. The bank may require, however, that a certain proportion b of this total be left on deposit; and for the present we shall suppose that this is actually the practice. The remainder of the deposit created by the loan, which is actually available for use by the borrower, is then the quantity l. What will now happen?

As the borrower draws against l, and as his checks are deposited in other banks, the original increase in deposits will spread to these other banks. In a highly integrated and sensitive society, such as we are here assuming, the new created deposit will thus be diffused throughout the banking system; but some of the checks drawn against it will be redeposited in the original expanding bank (which, it will be recalled, is the *only* bank to expand). The volume of these redeposits depends, on the average, on the relative size of the expanding bank. If the bank is large, the redeposits will on the average also be large; if it is small, they too will be small. The measure of this relative size, on the average, is the proportion which the expanding bank's deposits bore to the total net deposits of the system as a whole, *before* the expansion took place;[2] that is, the measure of relative size is D_1/D_0. This fraction we have designated by the symbol s.

The drain to other banks from the reserves of the expanding bank, c_1, will therefore be *directly* proportional to the size of the original increase in its available deposits, l; and *inversely* proportional to the original relative importance of the expanding bank itself. If the bank is small, the drain will be nearly as great as l; if the bank is large, redeposits will make the ultimate *net* drain smaller. When the drain is completed, the resulting decrease c_1 in the bank's reserves will therefore be:

$$c_1 = l \cdot (1 - s) . \tag{1}$$

Now by definition,

$$l = L \cdot (1 - b) . \tag{2}$$

[2] If the redeposits took place in proportion to the relative size of the expanding bank's deposits *after* the initial expansion, the bank would be able to increase its relative importance and its absolute size indefinitely by merely expanding its loans indefinitely, without undergoing any prior increase in reserves. This is, of course, impossible.

Substituting this expression in equation (1), we then have:

$$c_1 = L \cdot (1-b) \cdot (1-s) . \tag{3}$$

2. In addition, as its deposits expand the bank will undergo a drain of cash into circulation. This drain of cash from the original expanding bank into circulation is c_2. What determines its size?[3]

It is clear that only l, that part of the original loan proceeds L which can actually be drawn against, can occasion a drain of cash from the banks as a whole into the pocketbooks of the general public. Let the drain from the banks *as a whole* be C_2. We can at once determine the size of C_2, in terms of l, by reference to the term h; h is here defined as the ratio between cash in circulation and aggregate *available* deposits in the banks as a whole, and for the present is assumed to be constant. As cash is drawn into circulation by the expansion of bank loans, an equal amount of bank deposits is extinguished. The drain into circulation will continue until the proportion between the resulting increase of cash in circulation and the remainder of the original increase in the available deposits of the banks as a whole equals the ratio h. That is, it will continue until:

$$\frac{C_2}{l-C_2} = h . \tag{4}$$

Solving for C_2, and substituting for l from equation (2),

$$C_2 = L \cdot (1-b) \cdot \frac{h}{1+h} . \tag{5}$$

This is the drain into circulation from the banks as a whole. The bank which originally expanded will ordinarily undergo its proportional share of this aggregate drain, a share determined by

[3] As shown later (Part V, below), there is evidence to indicate that cash outside banks is really relatively inert under "ordinary" conditions in the United States. Where this is true the secondary drain, c_2, can be disregarded. For our present purposes, that is, the term h would be zero.

the relative size of the bank itself and hence measured by s. The drain from the original expanding bank, c_2, will therefore be:[4]

$$c_2 = L \cdot (1-b) \cdot s \cdot \frac{h}{1+h}. \tag{6}$$

The drain of cash into circulation from the original expanding bank is thus shown to be governed by the size of the original increase in its available deposits, the relative size of the bank itself, and the prevailing ratio between cash in circulation and the total available deposits of the banking system as a whole.

If we now add together the drain of cash into other banks and the drain into circulation from the original expanding bank (equations 3 and 6), and simplify, we have:

$$c_1 + c_2 = L \cdot (1-b) \cdot \left(1 - \frac{s}{1+h}\right). \tag{7}$$

3. Finally, the expanding bank must also hold additional minimum reserves c_3, against the total additional deposits remaining on its books after the two preceding drains have been completed. These remaining additional deposits will equal the amount of the original increase, L, *minus* the amount of the two drains just described. The additional reserves required will be this net remaining quantity, times the minimum reserve ratio r. That is:

$$c_3 = r \cdot (L - c_1 - c_2). \tag{8}$$

Substituting from equation (7) and simplifying,

$$c_3 = r \cdot L \cdot \left[1 - (1-b) \cdot \left(1 - \frac{s}{1+h}\right)\right]. \tag{9}$$

[4] In specific instances the drain may be smaller or larger than this, the limits being reached when the drain on the original expanding bank is zero, and when the drain from the banking system as a whole is concentrated on it alone. These alternatives, except the limiting cases, cannot be treated definitively. On the average, however, the drain will be proportional to the size of the bank itself.

A serious statistical difficulty arises from the fact that there are no data to show what proportion of the total net deposits of the banking system as a whole is actually available for use by depositors—or, conversely, to determine the size of b. In treating the banking system as a whole, we shall later find it desirable to ignore b entirely, assigning it a value of zero (see Part III, sec. 4, below).

4. We can now determine what the *total* quantity of reserves is, which is necessary to support a given expansion of deposits L undertaken by a single bank expanding *alone*. This requisite amount of reserves, c, is the sum of the primary, secondary, and tertiary drains just described. That is,

$$c=c_1+c_2+c_3\,. \tag{10}$$

Substituting from equations (7) and (9) and simplifying, we get:

$$c=L\cdot\left[r+(1-r)\cdot(1-b)\cdot\left(1-\frac{s}{1+k}\right)\right]. \tag{11}$$

This expression measures the quantity of reserves c, which a single bank expanding alone will find is drained out or tied up in consequence of an expansion of its deposits by an amount L.

5. We can now also obtain an answer to the opposite question, of how much an individual bank acting alone can expand its deposits on the basis of a given surplus of reserves. Let c be the original surplus reserves, and L the increase in deposits which is undertaken on the basis of this surplus. Then from the preceding equation:[5]

$$L=\frac{c}{r+(1-r)\cdot(1-b)\cdot\left(1-\frac{s}{1+k}\right)}\,. \tag{12}$$

6. From this last expression, in turn, we can obtain a coefficient of expansion, e_1, for the maximum amount by which a single bank can expand its deposits, if it *alone* expands, on the basis of a given surplus in its reserves. This coefficient is by

[5] L is the *net proceeds* of the new loans. If the loans are discounted in advance, their face amount will be somewhat larger than L. If the face amount of the borrowing be B, the rate of discount per unit of time i, and the number of units of time during which the loans are to run n, then:

$$L=B\cdot(1-i\cdot n), \quad \text{or} \quad B=\frac{L}{1-i\cdot n}\,. \tag{13}$$

In any case, however, the borrowers' accounts will be credited only with the amount L, and L alone will represent the initial resulting increase in deposits.

definition such that if c be the surplus of reserves, and L the maximum possible resulting increase in deposits,

$$L=c\cdot e_1\,, \quad \text{or,} \quad e_1=\frac{L}{c}\,. \tag{14}$$

If we substitute for L from equation (12), we then have this expression for the coefficient of maximum expansion of a single bank expanding alone *on the basis of surplus reserves:*

$$e_1=\frac{1}{r+(1-r)\cdot(1-b)\cdot\left(1-\frac{s}{1+h}\right)}\,. \tag{15}$$

In the United States, the deposits of any one bank are usually small relative to the national total of deposits, so that the value of the term s is only slightly greater than zero. The bank of "average" size in the United States has only about two million dollars of deposits, and for such a bank the value of s is now about 0.00004. If we somewhat arbitrarily take b as 0.20, h as 0.09,[6] r as 0.10 on the average, and s as 0.00004, the value of the coefficient e_1 is 1.22. Even for the largest banks in the country, with deposits of over a billion dollars, the value of e_1 is only 1.24. In other words, in this country a single bank, if it *alone* expands, can create new deposits to an amount of only about 1.2 times its surplus reserves.

If we ignore b (proportion of loan proceeds required to be left on deposit), however, or take it as zero,[7] the value of e_1 is only

[6] The actual value of the ratio h in the United States, however h is defined, fell steadily in the twenty years preceding the present depression. For 1926–30 the average value, taking h as the ratio of cash outside of *all* banks to *total* net bank deposits, was roughly 0.07. If h is calculated merely from cash outside the Reserve banks and the Treasury, the figure is roughly 0.09. For reasons to be presented later (see Part V, sec. 2c) the latter value seems more significant for most purposes; "cash" is not "reserves" for Federal Reserve member banks. If it were statistically feasible to calculate the ratio to *available* deposits alone, the value of h would be still higher.

[7] When b is taken as zero, we have:

$$e_1=\frac{1+h}{1+h-s\cdot(1-r)}\,. \tag{16}$$

slightly above 1. For the average American bank it is 1.00004; and even for the largest banks in the country it is only 1.017. That is, in this country any one bank can increase its *deposits actually available* by only a very little more than the amount of its surplus reserves.[8] The limitation on expansion here comes chiefly from the effect of adverse clearing balances, and of the minimum reserve requirement. The drain of cash into circulation has little effect on the single bank. Even if there were no drain whatsoever, the value of the coefficient e_1 would be increased by only a small fraction of 1 per cent.

Under American conditions, the order of importance of the various factors which limit the size of the coefficient e_1 is: b, s, r, h. The coefficient itself varies directly with b and s, inversely with r and h.

7. It may be objected that the foregoing derivation of the coefficient of expansion for a single bank treats the various calls on its reserve cash as though they took place successively, whereas in actuality they take place simultaneously. That is true; but the treatment by stages which are assumed to be successive, instead of simultaneous, is merely a matter of convenience in the algebraic procedure. The form of the coefficient of expansion as finally established is such that it summarizes, under the general condi-

[8] In European countries, the banks usually do not require that part of the proceeds of loans be left on deposit, and there the value of b is hence zero. The banks are also fewer, and relatively larger. In the case of a bank holding 10 per cent of all the country's commercial deposits, so that s is 0.10, and with h taken as 0.09, r as 0.10, and b as zero, the value of e_1 is 1.090. If the value of r is taken as only 0.07, then under these conditions the value of e_1 rises a little, to 1.094.

The propriety of treating h as a constant is evidently debatable, and will be discussed later (see Part V, below). The effect of h is negligible, however, in the case of a single bank.

Certain writers still hold to the view that a single bank, even though acting alone, can expand its loans on the basis of surplus reserves by the reciprocal of its reserve ratio—in the cases here considered, by 10 times. See especially H. G. Moulton, *The Financial Organization of Society* (3d ed., Chicago, 1930), p. 554. As will be shown later, when *all* the banks expand together, the banking system as a whole, and each bank in it, can expand in something like this proportion; but a single bank which expands *alone* cannot exceed the coefficient values given above, under the conditions here assumed—chiefly because of the adverse clearing balances it at once encounters.

tions here presupposed, the simultaneous action of all the limiting forces at work.

8. The same coefficient can be used to show the effects of contraction instead of expansion. If a bank contracts a part of its loans, and thus forces payments from its debtors of an amount B, the resulting increase c in its reserves will be:

$$c=\frac{B}{e_1}. \tag{17}$$

Similarly, if the bank has a deficiency in reserves of a quantity c, it will be compelled to reduce its deposits by an amount L, which is given by equation (14):

$$L=c\cdot e_1.$$

9. To this point, the problem at issue has been that of determining how much the created deposits of an individual bank can be expanded *on the basis of a given surplus of reserves* (or of how great a contraction is required by a given deficiency in reserves). The next problem is that of determining how much created deposits can be expanded *on the basis of a given deposit of new cash.* Let the letter a designate this new cash.

The new cash may not give rise to a demand deposit. It may be received from the bank's stockholders as an additional investment. In that event all of a is an addition to reserves. Unless its reserves were previously deficient, the bank can then expand its loans by an amount which will produce an increase L' in its created deposits. This increase is given by equation (14) above (with the term a substituted for the term c therein):

$$L'=a\cdot e_1. \tag{18}$$

Or the new cash may arise from a true time deposit. In that event all of a is again an addition to reserves, and hence available for loan expansion, except for the small proportion which must be kept as reserve against the time deposit itself. If the required reserve ratio against time deposits be u, then:

$$L'=a\cdot(1-u)\cdot e_1. \tag{19}$$

As a rule, however, the new cash received will give rise to an equivalent demand deposit, as happens when the bank's customers deposit cash in the ordinary course of business.[9] In our view (an alternative opinion will be examined presently), there is usually no reason to expect that this deposit will be treated by its owner any differently from any other deposit, such as one resulting from the deposit of a check or the granting of a new loan. The cash originally received by the depositary bank will therefore ordinarily be subjected to the various drains already examined. Part of it will flow into other banks, part will be drawn into general circulation outside all banks, and part will be tied up as reserve against the original deposit itself. The sum of these primary, secondary, and tertiary drains is given by equation (11) above, but with one importance difference. Since a bank which receives a deposit of cash ordinarily cannot require that a fixed proportion of this cash be left on deposit, the term b must be taken as zero. If in equation (11) we then substitute the term a (new cash deposit) for the term L (expansion of created deposits), and if we take b as zero, the total drain c which operates against the original cash deposit is, after simplifying:

$$c = a \cdot \left[1 - \frac{s \cdot (1-r)}{1+k} \right] . \tag{20}$$

The amount of the original cash deposit which is then left in the bank, and which hence is available as the basis for a new increase L' in the bank's own created deposits, is $(a-c)$; and the maximum possible size of the increase L' in created deposits is therefore:

$$L' = (a-c) \cdot e_1 . \tag{21}$$

[9] This cash may be drawn from the existing circulation of cash outside the banks themselves; or may in effect represent a transfer of reserves from one bank to another; or may constitute an accretion to the aggregate of cash in the entire banking and currency system (as in the case of new monetary metal coming from the mines, or of imports thereof, or of the printing of additional notes). The question of the source of the cash is of fundamental importance in considering the possible expansion of loans for the banking system *as a whole* (see Part II, sec. 4, below), but is of negligible significance in analyzing the expansion of a single bank *acting alone*, which is the problem here at issue.

Substituting for c from (20), expanding, and simplifying, this gives:

$$L' = a \cdot e_1 \cdot \frac{s \cdot (1-r)}{1+h} . \tag{22}$$

This last expression permits us to derive a second coefficient, the coefficient of the maximum expansion of a single bank's created deposits *on the basis of a deposit of new cash*. Let this coefficient be f_1. It is such that:

$$L' = a \cdot f_1 , \quad \text{or} \quad f_1 = \frac{L'}{a} . \tag{23}$$

Substituting from (22), we then have:

$$f_1 = e_1 \cdot \frac{s \cdot (1-r)}{1+h} . \tag{24}$$

Examination of the numerical values of this coefficient shows that its magnitude is always, in probable situations, fairly close to the magnitude of s, since the aggregate value of the other terms is not far from 1. Thus when b is taken as 0.20, h as 0.09, r as 0.10, and s as 0.00004, the value of f_1 is 0.00004; if b is zero,[10] f_1 is 0.00003; if b is 0.20, but s is 0.02, f_1 is 0.0204; and so on. That is, the maximum expansion of a given bank's created deposits on the basis of new cash deposits is governed chiefly by the relative size of the bank itself. When expressed in percentage terms, the two magnitudes have nearly the same numerical values.

Thus the American bank of average size can hope to expand its loans, if it expands *alone*, by only some 0.004 per cent of the amount of a cash deposit brought in by a customer in the ordinary course of business; and even the largest American banks can expand by only some 2 per cent of such a deposit. In European countries, where the banks are fewer and relatively much larger, the figure may run higher, but always remains at approximately the value of s.

[10] When b is zero, we have:

$$f_1 = e_1 - 1 . \tag{25}$$

10. This coefficient also shows the amount by which a single bank will be compelled to contract its created deposits in consequence of a *loss* of cash, if its reserve ratio is already at the minimum. If we let a designate this loss of cash, and L' the consequently necessary contraction of deposits, equation (23) applies:

$$L' = a \cdot f_1 .$$

11. Professor Phillips' well-known equations give somewhat different answers to the foregoing problems,[11] due in part to his use of different assumptions. In the first place, Professor Phillips ignores the question of the relative size of the individual bank, and also the fact that a drain of cash into outside circulation may be produced by an expansion of bank loans. He takes account of only the adverse clearing balance and the minimum reserve ratio as limiting factors. To make our coefficients comparable with his, our terms h and s must, therefore, be taken as zero. When this is done, our coefficient for the expansion of a single bank's created deposits on the basis of a given surplus of reserves (equation 15, above) becomes:

$$e_1 = \frac{1}{r + (1-r) \cdot (1-b)} . \qquad (26)$$

In the second place, Professor Phillips assumes that new cash deposited in a given bank will *not* be diffused to other banks and into general circulation. In other words, he assumes that all of the cash thus deposited will be available for loan expansion, except that fraction which must be held against the deposit of the cash itself. This assumption is highly debatable, since there is no general reason why a depositor should treat a demand deposit arising from the payment of cash to the bank substantially differently from the way he treats a deposit created by a loan. If we accept the assumption, however, our equations reduce to the same

[11] C. A. Phillips, *Bank Credit* (New York, 1921), p. 55. Also see the expansions of Professor Phillips' method by Professor J. S. Lawrence (*Quarterly Journal of Economics*, August, 1928); by Professor J. H. Rogers (*Proceedings of the American Economic Association*, March, 1932); and the discussion in J. M. Keynes, *Treatise on Money*, II, 49 ff., 243 ff.

terms as Professor Phillips'. In place of equation (21) above, we have:

$$L' = a \cdot (1-r) \cdot e_1 . \tag{27}$$

When h and s in the coefficient e_1 are taken as zero (as is done in equation 26), this becomes:

$$L' = \frac{a \cdot (1-r)}{r + (1-r) \cdot (1-b)} , \quad \text{or} \tag{28}$$

$$L' = \frac{a \cdot (1-r)}{b \cdot r + 1 - b} . \tag{29}$$

This is identical with Phillips' expression: his terms x, c, and k are our terms L', a, and b, respectively. The numerical value of the expression, with b taken as 0.20 and r as 0.10, is 1.0976. It may be remarked in passing that even if the terms h and s be reintroduced, with h taken as 0.09 and s very small, the numerical value of the resulting coefficient is only slightly greater than the value given by Phillips' expression.[12]

But Phillips' results rest on the assumption that the new cash deposited is *not* itself diffused into other banks and into general circulation. In most cases, this assumption seems to us unwarranted. In general, the cash deposit will be diffused like any other deposit. If this diffusion does take place Professor Phillips' type of expression, which has a coefficient value of 1.0977 for the average American bank, becomes inapplicable. The expression appropriate to indicate the maximum possible expansion here is neither Phillips' expression nor the modification just suggested of our coefficient e_1, but is, instead, our coefficient f_1 (equation 24, above), which for the average American bank has a value of only 0.00004. That is, under the conditions here assumed, a single

[12] The coefficient of expansion which corresponds to Phillips' assumptions, but with h and s reintroduced, we may designate as f_1. Its composition is:

$$f_1 = (1-r) \cdot e_1 . \tag{30}$$

The numerical value of this expression, with b taken as 0.20, h as 0.09, and s as 0.00004, is 1.0977. Even if s be taken as 0.02, which in the United States corresponds to a bank with a billion dollars of deposits, the value of this coefficient rises only to 1.1155. If s is 0.00004 and b is taken as zero, the value falls to 0.900036.

average American bank *acting alone* can usually expand its loans, on the basis of new cash deposited with it, not by 1.0977 times the amount of the new cash, but by only 0.004 of 1 per cent of this amount.[13]

II. THE EXPANSION OF THE AGGREGATE OF COMMERCIAL BANKS

Analysis of the limits on expansion for the commercial banking system as a whole is simpler than for a single bank, because fewer factors require consideration. We shall continue for the present the assumption that commercial bank reserves consist simply of "cash," and shall hence continue to ignore the question of the relations between the commercial banks and the central bank. We shall also assume that the same minimum reserve ratio is required by every bank in the system; and at first shall assume that the proportion between cash in circulation and net demand deposits (the term h) remains constant. Finally, we continue the assumption that the society is isolated.

1. Suppose, first, that the commercial banking system as a whole has a surplus of reserves C. By how much can the banking system expand its aggregate loans on the basis of this surplus of system reserves? Let the increase in created deposits originally resulting from this loan expansion, if it takes place, be L_n. We can then ask, what is the maximum possible size of L_n?

There are two possible ways of going at the problem. On the one hand, we can start with those banks which actually happen to hold the surplus reserves at the start—reserves which, when taken together, constitute the surplus, not only for these individual banks, but also for the system as a whole—and can then apply to each of these banks the coefficient of expansion e_1, which

[13] Professor Phillips' difficulty arises in part from his treatment of the relative size of the given bank, which is measured by our term s. At one point he assumes that the bank loses *none* of a deposit of new cash—which we believe would happen, if at all, only when the bank in question was the *only* bank, and s hence equal to 1. At another point he assumes that the bank loses nearly all of a deposit created by granting new loans, which would happen only if the bank (and hence the term s) were relatively small. Indeed, in his formula quoted above (our equation 29), he adopts the first alternative in the numerator of the expression, and the second in the denominator.

defines the maximum possible expansion of a single bank expanding alone on the basis of surplus reserves. Then we can calculate the degree to which the *other* banks will be able to expand initially, on the basis of the additions to reserves which they receive through favorable clearings with the original expanding banks; then the further expansion which each bank (now including the original expanding banks) can undertake on the basis of the clearings drains received from this second expansion of the other banks; and so on. There will thus be a series of successive and progressively smaller expansions, as each bank gains a little additional reserves from the expansion of other banks in the system but loses a little from its own consequent expansion, until at last in every bank the reserve ratio is at the minimum, and the system as a whole is thus expanded to the maximum possible. By summating the several partial expansions, we can then determine the maximum possible expansion of the system as a whole, in terms of the original surplus of system reserves. But this procedure is cumbrous, and has the further disadvantage that it does not lead directly to the formulation of a simple algebraic expression summarizing the action of the factors which limit the aggregate system expansion.[14]

On the other hand, we can start with the single-bank coefficient e_1; relate this coefficient to an ever larger group of banks, instead of to one alone; and when the group has grown to such size that it has become the whole banking system itself, observe what changes have taken place in the form of the coefficient. The alteration is an obvious one. Since "the bank" considered is now the banking system as a whole, the relative size of "the bank," which is measured by the term s, is necessarily unity. In the

[14] To set up an expression for the summation of the maximum possible partial expansions it is most convenient to use as the point of departure, for measuring the successive waves of "secondary" expansion, an expression for the drain into clearings from the original expanding bank or banks. This expression is established in terms of the original surplus reserves, minus the drains from the original bank or banks into circulation and into necessary minimum reserves (see the development of the coefficient e_1). Let s be the relative size of the *average* bank. Then the expression for the summation, in terms of the original surplus of system reserves, is:

$$\Sigma = e_s \cdot \left[1 + (1-s) \cdot \left\{ \left[\frac{1-r}{1+h} - b \cdot \left(r - b \cdot \frac{h}{1+h} \right) \right] + \left[\frac{1-r}{1+h} - b \cdot \left(r - b \cdot \frac{h}{1+h} \right) \right]^2 + \cdots \right\} \right]. \quad (31)$$

earlier expression which defined the maximum possible expansion of a single bank's deposits on the basis of its surplus reserves (equation 15, above), we can therefore now give s a value of 1. On simplifying, we then find that the maximum possible expansion of aggregate system deposits, L_n, on the basis of aggregate surplus system reserves C, is:[15]

$$L_n = \frac{C}{r+(1-r)\cdot(1-b)\cdot\frac{h}{1+h}}. \tag{32}$$

Now let e_n be the coefficient of maximum expansion of the system as a whole, on the basis of aggregate surplus system reserves. This coefficient is such that:

$$L_n = C\cdot e_n, \quad \text{or} \quad e_n = \frac{L_n}{C}. \tag{34}$$

Substituting from (32), and simplifying, we then get:[16]

$$e_n = \frac{1+h}{r+h\cdot[1-b\cdot(1-r)]}. \tag{35}$$

[15] If the new loans are discounted in advance, at a rate of i per cent per unit of time for a total of n units of time, the face value of the loans will be larger than the actual net proceeds to the borrowers, and by a definite amount. If L_n be these net proceeds, and B_n the original face value, then (see the similar expression in equation 13, above):

$$L_n = B_n\cdot(1-i\cdot n), \quad \text{or} \quad B_n = \frac{L_n}{1-i\cdot n}. \tag{33}$$

[16] This coefficient can also be obtained directly. With an expansion of deposits L_n, the resulting drain of cash into circulation, C_2, will be:

$$C_2 = L_n\cdot(1-b)\cdot\frac{h}{1+h}.$$

The necessary reserves C_3, which must be held against the remainder of the original increase in deposits, will be:

$$C_3 = r\cdot L_n\cdot\left[1-(1-b)\cdot\frac{h}{1+h}\right].$$

The total amount of reserves C which are tied up by the expansion will be the sum of these two drains:

$$C = L_n\cdot\left[r+(1-r)\cdot(1-b)\cdot\frac{h}{1+h}\right].$$

This expression, when simplified, yields the coefficient e_n.

If we take the same values for the constants as before (b as 0.20, h as 0.09, and r as 0.10), the value of this coefficient is 6.27. That is, under these assumptions the banking system *as a whole* can expand its aggregate deposits by 6.27 times the amount of its aggregate surplus reserves. If h is treated as zero, the value of the coefficient rises to 10. If h is kept at 0.09, but r drops to 0.07, the value is 7.60. If h is kept at 0.09 and r at 0.10, but if b is treated as zero, the value falls to 5.74.[17] Values under various other assumptions are given in Table IV in Part VI, below.

2. If only certain banks expand, while others lag behind or do not expand at all, those which run ahead of the average will encounter adverse clearing balances, while those which lag behind will accumulate surplus reserves. The first set of banks will thus eventually be compelled, by the loss of reserves, to adjust downward to the average rate of expansion, while the second set will have a strong incentive to expand more rapidly because of the opportunity for increased profit. These intergroup drains and accumulations can also be measured by the preceding equations (see Part III, sec. 2, below).

Yet though a credit expansion, once started, thus tends to be universal and uniform, of course no bank can be compelled to increase its loans if it does not wish to do so. The coefficient defined in equation (35) hence gives only the maximum expansion which is *possible* in the system as a whole, not that which may actually be found in a given case.

3. The effect of a deficiency in the reserves of the system as a whole can be measured by the same coefficient e_n. If the system was previously expanded to the maximum, and now loses reserves in an aggregate amount C, deposits must be contracted by an amount L_n, such that (from equation 34):

$$L_n = C \cdot e_n .$$

[17] When b is taken as zero, the form of the coefficient becomes:

$$e_n = \frac{1+h}{r+h} . \qquad (36)$$

Similarly if loan contraction reduces deposits by an amount L_n, the resulting surplus reserves of the system as a whole (if reserves were not previously below the minimum) will be:

$$C=\frac{L_n}{e_n}.$$

4. When the banking system as a whole thus expands on the basis of surplus reserves, how great will be the expansion *of any one bank* in the system?

For simplicity, suppose first that the surplus system reserves were originally all held by a single bank, and that the other banks were therefore already expanded to the maximum permitted by their own existing reserves. The initial maximum expansion of the bank, which itself originally held the surplus reserves, is measured, in terms of these surplus reserves, by the coefficient e_1; this expansion we may also call the *primary* maximum expansion of the system itself. The chief reason why this first bank cannot expand by more than the limited amount indicated by this coefficient, however, is that, as it expands, it loses reserves to the other banks in the system through adverse clearings. But what it loses, the others, of course, gain. The latter banks, assuming that all expand to the maximum, will in turn expand on the basis of these additional reserves; but in the process, as already shown, each will in turn *lose* most of its additional reserves to the aggregate of the other banks—including now the bank which originally expanded. And each will in turn *gain* reserves again from the subsequent resulting expansions of every other bank in the system, and again lose most of them, until at last all the original surplus reserve is used up, and in each bank the reserve ratio is at the minimum. The sum of these successive partial expansions, which act and interact on one another, we may call the *secondary* maximum expansion of the system. Since the *total* expansion of the system as a whole on the basis of the original surplus system reserves is given by the coefficient e_n, the expression for the aggregate maximum secondary expansion is:

$$e_n-e_1.$$

The share of any one bank in this secondary expansion will *on the average* be proportional to the relative size of the bank itself, as measured before the process of expansion starts. The value thus secured will be only approximately correct in any given case, however, since the bank which enjoyed the original *primary* expansion will have slightly less than a proportional share in this *secondary* expansion, and the other banks a slightly larger share.[18] The approximation is close enough for most purposes, however. If we let the expression Z_2 represent the *average* share of a single bank in the aggregate secondary expansion, measuring this expansion in terms of the original surplus of system reserves, we can write:

$$Z_2=(e_n-e_1)\cdot s\,. \tag{37}$$

If Z_1 be the primary expansion of the system, participated in only by that bank which originally held the surplus reserves, we can also write:

$$Z_1=e_1\,. \tag{38}$$

Finally, the *total* maximum expansion of the system is the sum of the primary expansion and the aggregate of the secondary expansions of the individual banks. Let it be Z. Then:

$$Z=Z_1+\Sigma(Z_2)=e_1+\Sigma[(e_n-e_1)\cdot s]=e_n\,. \tag{39}$$

Since the summation of the s term is 1, this expression is an identity.

The numerical value of Z_2, for a bank of average size in the United States, and with the same constants as before, is 0.0002. The total maximum expansion of the bank which originally held the surplus reserves is this sum, plus the value of the coefficient e_1.

When the surplus reserves are held by a number of banks instead of by one alone, the same procedure is applicable. The pri-

[18] This is true, because the first wave of secondary expansion will be shared in only by those banks which did *not* hold the original surplus reserves, and which hence did not participate in the primary expansion. All the other waves of secondary expansion, however, will be shared in by *all* the banks, substantially in proportion to their size.

mary expansion of these banks *taken as a group* can again be measured by the coefficient e_1; and the aggregate secondary expansion of all the banks taken together by e_n minus this e_1.

The same expression can also be used, conversely, to measure the contraction in deposits which a loss of reserves by one bank or group of banks will enforce on any other bank, provided the system was previously expanded to the maximum permitted by its reserves.

5. Next, suppose that the banking system as a whole receives a net increase in reserve cash. Let the increase be A.

If the new cash does *not* come in as a deposit—for example, if it represents an additional investment in the banks made in the form of cash—then the whole of this cash will be an addition to reserves. Unless the reserve ratio was previously below the required minimum, deposits can then be expanded by the full amount shown in equation (34). Substituting A for C in that equation, we have as the maximum possible expansion of deposits, L_n:

$$L_n = A \cdot e_n . \tag{40}$$

Similarly, if the new cash comes in as a true time deposit, all of the cash will be available as the basis for loan expansion except the small amount required to be kept as reserve against the time deposit itself (see equation 19, above).

But the cases to which these considerations apply are neither very numerous, relatively speaking, nor very important. The usual situation encountered in actual practice is that in which the new cash comes in as a demand deposit. The analysis of this problem is somewhat more complicated.

Suppose, first, that the new cash A comes from outside the existing banking and currency system, so that it is a net addition to the country's aggregate stock of cash. Such an addition takes place when bullion is minted into coins, or when cash is imported from abroad.[19] The deposit of the new cash in bank will, at first,

[19] The discussion which follows in the text also applies to the deposit of bullion, if the banks are allowed to count the bullion as reserves, and *provided* the ratio between cash in circulation and total net demand deposits (the term k) remains constant. The case in which this latter ratio varies is examined in Part III.

increase bank deposits by an equal amount, A. But this increase in deposits, occurring as it does without an accompanying increase in the quantity of cash in actual circulation, will alter the previously existing ratio between cash and deposits. Now we have hitherto assumed that this ratio (our term h) tends always to remain constant. If we continue the assumption for the moment, it follows that, of the new cash A received by the banks as a deposit, part will soon be drawn out into active circulation, thus restoring h to its previous value. This drain into circulation we may designate C_2. Evidently C_2 must be of such size (compare the analogous equation 4) that:

$$\frac{C_2}{A-C_2}=h\,. \tag{41}$$

Or, solving for C_2:

$$C_2=A\cdot\frac{h}{1+h}\,. \tag{42}$$

In addition, the banks will have to keep reserves against the balance of the deposit still left with them. Let these reserves be C_3. Then:

$$C_3=r\cdot(A-C_2)\,. \tag{43}$$

The part of the original cash deposit A which is still left as surplus reserves, and which can be used as the basis for a further expansion of *created* deposits, may be designated as C.[20] This net remaining surplus of reserves C is:

$$C=A-C_2-C_3\,. \tag{44}$$

Substituting for C_2 and C_3, and simplifying,

$$C=A\cdot\frac{1-r}{1+h}\,. \tag{45}$$

[20] The reader will note that this term C is *not* the sum of the preceding terms C_2 and C_3.

The maximum expansion of created deposits L_n, which is possible on the basis of these surplus reserves C, is (from equation 34):

$$L_n = C \cdot e_n .$$

Substituting for C from (45), we then have:

$$L_n = A \cdot \frac{1-r}{1+h} \cdot e_n . \tag{46}$$

From this expression we can now derive the coefficient of expansion for the system as a whole *on the basis of cash deposits "A" coming from outside the system itself.* Let this coefficient be f_n. It is such that:

$$L_n = A \cdot f_n , \quad \text{or} \quad f_n = \frac{L_n}{A} . \tag{47}$$

Substituting from (46), we have:

$$f_n = \frac{1-r}{1+h} \cdot e_n . \tag{48}$$

This expression is the same as that obtained by taking s as 1 in the equation (24) for f_1. By substituting for e_n from (35) and simplifying, we then get:

$$f_n = \frac{1-r}{r+h \cdot [1-b \cdot (1-r)]} . \tag{49}$$

If b is taken as 0.20, h as 0.09, and r as 0.10, as before, the value of this coefficient is 5.18. That is, the banking system as a whole can lend 5.18 times the amount of a new cash deposit coming from outside the system itself. If b is taken as zero, however, the value of the coefficient drops to 4.74.[21]

[21] When b is taken as zero, and when the expression for f_n is compared with that for e_n under the same circumstances (equation 36), the coefficient becomes:

$$f_n = \frac{1-r}{r+h} = e_n - 1 . \tag{50}$$

It should also be pointed out that the inflow of cash, from outside the currency

Conversely, if the system as a whole was previously expanded to the maximum, and now loses reserve cash which goes outside the system in an amount A, it will have to contract its aggregate deposits in an amount L_n, as given by equation (47):[22]

$$L_n = A \cdot f_n .$$

6. Suppose, next, that the new cash deposited does *not* come from outside the banking and currency system, but is paid into the banks from the existing circulation of cash. This last is of course a common daily occurrence. The quantity of cash in circulation is then decreased; the quantity of available bank deposits is increased by an equal amount; and the ratio h, the proportion between the two, is lowered. Now we have hitherto assumed that h was a constant. Our treatment of this new situation must rest on one of two premises.

First, we can assume that the value of h is lowered only temporarily. In that event, the cash deposited in bank will soon flow back into circulation, bank deposits themselves will fall to correspond, and the previous value of h will be restored. Or, second, we can assume that a permanent change in the value of h

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and banking system, itself increases deposits, after allowing for the drain of cash into circulation, in a ratio to the inflow of:

$$\frac{1}{1+h}.$$

Adding this to the expansion of created deposits alone, which is measured by f_n, gives a *total* maximum expansion produced by the inflow of cash of:

$$\frac{1+h\cdot(2-r)}{(r+h)\cdot(1+h)}, \quad \text{or} \quad e_n - \frac{h}{1+h}. \tag{50a}$$

This expression is not in itself, however, one which we shall find especially useful.

[22] It is this coefficient f_n which should be applied in measuring the effects of the hoarding of cash in the United States in 1931 and 1932. Since the cash was hoarded, it was in effect completely abstracted from the economic universe, for the time being; hence the hoarding in itself entailed no permanent change in the value of the term h (see the next section). Contrary to the usual statement, each dollar of cash withdrawn from the banks and hoarded compels, under the assumptions utilized in the text above, a contraction in bank deposits not of $10.00 but of only between $4.74 and $5.18, even if the banks' own reserve ratios were previously at the minimum. The adverse effects of hoarding on the banking situation thus appear to have been somewhat exaggerated.

has taken place. In that event we should have to recalculate the numerical values of the preceding coefficients, using the appropriate lower value for h, and securing slightly lower values for the coefficients themselves.

The latter situation, however, is essentially indeterminate, since under the assumptions here used there is no way of telling *in advance* how much cash can be drawn from circulation into the banks before a counter-drain back into circulation will be set up. In the extreme limiting cases, which appear when *all* the cash in circulation has been drained into the banks, or when changes in the quantity of cash and in the volume of bank deposits are indifferent to one another, the value of h must be taken as zero. If h is taken as zero, however, the coefficient of maximum expansion on the basis of deposits of new cash reduces to very simple terms. Let this coefficient be f'_n; then, with the only remaining limiting factor being the reserve ratio, we have in place of equation (49) the following:[23]

$$f'_n = \frac{1-r}{r}. \tag{51}$$

The numerical value of this coefficient, with r taken as 0.10, is 9.00. The extent to which the coefficient can be applied to American conditions, however, is not clear. On the average, the term h can probably be treated as zero only with respect to comparatively short periods. This latter question will be examined at greater length in Part V.

7. Expressions for the maximum expansion *of any one bank*, when the banking system as a whole expands on the basis of new cash deposits, can be established by the same procedures as those used in Section 4 above. Using the situation to which the coefficient f_n is applicable, as an illustration, the sum of the partial maximum expansions is:

$$Z = Z_1 + \Sigma(Z_2) = f_1 + \Sigma[(f_n - f_1)\cdot s] = f_n. \tag{52}$$

[23] This expression is the only solution given by Professor Phillips for the problem of system expansion on the basis of cash deposits (see his *Bank Credit*, p. 39). Professor Phillips here ignores the possible drain of cash into circulation in his main argument, though recognizing in a footnote that such a drain may take place.

8. The numerical values of the various coefficients thus far established may now be summarized (taking b as 0.20, h as 0.09, r as 0.10, and s as very small). The original equation numbers are repeated. The second value given is that obtained when b is taken as zero.

a) Single bank, expanding alone on surplus reserves:

$$e_1 = 1.22\,, \quad \text{or} \quad 1.00004\,. \tag{15}$$

b) Single bank, expanding on a deposit of cash:

(1) If the resulting deposit *is* diffused into other banks and into general circulation:

$$f_1 = s\pm\,; \text{ average} = 0.00004\,. \tag{24}$$

(2) If the resulting deposit *is not* thus diffused:

$$f'_1 = 1.098\,, \quad \text{or} \quad 0.900\,. \tag{30}$$

c) Commercial banking system as a whole, expanding on surplus reserves:

$$e_n = 6.27\,, \quad \text{or} \quad 5.74\,. \tag{35}$$

d) System as a whole, expanding on a deposit of cash received from *outside* the currency and banking system:

$$f_n = 5.18\,, \quad \text{or} \quad 4.74\,. \tag{49}$$

e) System as a whole, expanding on a deposit of cash received from active circulation within the country, *provided "h" is taken as zero:*

$$f'_n = 9.00\,. \tag{51}$$

III. OBSERVATIONS ON THE SINGLE-BANK AND SYSTEM COEFFICIENTS

1. We have hitherto assumed that the same minimum reserve ratio is maintained by every bank in the system. This assumption is, of course, contrary to fact, especially in the United States. In practice, in computing the system coefficients for a given country

it would therefore be necessary to use for the term r a weighted average of the various minimum reserve ratios actually observed. This still leaves one difficulty, however. If deposits are shifted from low-ratio banks to high-ratio banks, as from the country to the city, the *average* reserve requirement which is effective for the system as a whole will be *increased* by the mere fact of this shift; and the values of the coefficients of possible system expansion will be lowered. If a shift takes place in the opposite direction, on the other hand, the values of the coefficients will be raised.

The coefficients themselves therefore cannot be regarded as having absolute validity irrespective of time and circumstance. If the system is expanded to the maximum, for example, and if a shift of deposits then takes place from the low- to the high-ratio banks, the system's aggregate reserves will become deficient and contraction will be necessary, despite the fact that there has been no change in the *total* volume of system deposits, or of system reserves.

In order to allow for these possible shifts, the reserve ratio r which is used in computing the coefficients must therefore not only be a weighted average, with the weights based on the relative sizes of the deposits in each reserve-ratio group of banks, but must be one in which the weights vary as these relative sizes shift. If all deposits were held under a 7 per cent minimum reserve requirement, for example, then, with b taken as zero, and h as 0.09, the value of the coefficient e_n would be 6.80, and of f_n, 5.80. If the minimum reserve requirement were 13 per cent, however, e_n would be only 4.95, and f_n only 3.95. For banks which are members of the Federal Reserve system, these figures suggest the extreme hypothetical range of the effects which may be produced by shifts of demand deposits from one reserve-ratio group to another.

There is also another complication in connection with the reserve ratio. For most commercial banks in the United States, the size of the minimum reserve ratio against demand deposits is fixed by law, and is hence nominally invariable in any one case. But the persistent post-war tendency to shift deposits from the demand to the time class has had the consequence of lowering the

minimum reserve ratio which is really effective, and thus of increasing the values of the coefficients of expansion. For any one bank, it is true, the increase is not great. With a 13 per cent requirement, b equal to 0.20, and s very small, the value of e_1 is 1.21, while with a 3 per cent requirement the value rises only to 1.24. But for the system as a whole the increase is striking. With an average reserve requirement of 13 per cent, as just shown, the value of e_n is only 4.95, and of f_n only 3.95; but with a 3 per cent requirement e_n rises to 9.05, and f_n to 8.05. These figures again illustrate the theoretically possible range of alternatives, under American conditions.

Of course, it is not likely that a bank borrower will deposit the proceeds of his loan in a time deposit account, or that the lending bank will encourage him to do so. The minimum reserve requirement against time deposits is of real significance, however, in connection with credit expansions based on deposits of cash which itself comes in as a time deposit—that is, in connection with situations to which the coefficient f_n is applicable. In the numerical examples presented in earlier sections we assigned to r the convenient but arbitrary value of 0.10, for lack of precise statistical information; but it seems entirely probable that, because of the large proportion of time deposits, the average reserve ratio which is effective in the United States is substantially lower, perhaps 0.08 or even 0.07.

The effect on the coefficients *for a single bank* of different reserve ratios in other banks, and of shifts of deposits from one reserve-ratio group of banks to another, is negligible.

2. Actual societies are not perfectly integrated nor sensitized in their financial relations, nor is the movement of purchasing power perfectly fluid. In the United States, for example, the banks in a given city or region, if they move roughly together, can apparently often expand to a considerable extent before the drain from their reserves, caused by adverse clearing balances with other parts of the country, places any substantial check upon them. That is, within limits a given regional group may itself operate like an isolated banking universe. The adjustment *within* such a regional group (and possibly within a structural group,

such as a branch or chain banking system) is presumably relatively rapid and exact; but the adjustment *between* any one group and the country as a whole—between it and the aggregate of other similar groups—may be relatively slow, and is presumably never perfect. As long as substantial maladjustments persist—as long as the "fluidity" of purchasing power between groups remains imperfect—the banks which originally start an expansion will be exposed to smaller drains of reserves into clearings than if the adjustment were perfect. They will hence be able to expand by amounts substantially greater than those indicated in the numerical illustrations above. That is, the value of the coefficients e_1 and f_1 will be increased, at least for short periods. The value of the coefficients e_n and f_n, however, will not be affected: what the original expanding banks gain in power of expansion, the other banks in the country as a whole will lose.

The equations presented above also furnish tools for the analysis of these intragroup and intergroup relations. For studying changes within a given regional or structural group, the deposits of the given bank are D_1, as before, while the deposits of the group as a whole can be designated as D_n. For studying the relations of the group itself to the banking system as a whole, the deposits of the group can in turn be designated as D_1, and those of the entire banking system as D_n. The appropriate coefficients can then be derived as before (see Part I, section 1). Imperfect sensitivity and imperfect fluidity of purchasing power between different banks and regions can be tested roughly by comparing the relative movements of reserves, loans and deposits; but the results will necessarily be only indicative at best.[24]

3. Certain difficulties of fact and interpretation arise in connection with the term b, the proportion of loan proceeds required to be left on deposit. This requirement is uncommon outside of the United States, and in applying the preceding analysis to foreign countries, the coefficients of maximum expansion should there-

[24] If all three items in a given group are growing substantially more rapidly than in the country as a whole, the presumption evidently is that the fluidity of purchasing power between this group and others in the country is small, unless it can be shown that the region is carrying a relatively larger part of the country's production and trade than before.

fore usually be given the simpler forms and the lower values obtained when b is taken as zero.

Within the United States, on the other hand, the situation is neither uniform nor clearly defined. In the preceding sections, for illustrative purposes, we assigned to b a value of 0.20, since this percentage has been common in American banking practice. The value was selected quite arbitrarily, however, since data do not exist for making an accurate empirical determination. The requirement that a specified proportion of the proceeds of new loans be left on deposit, where it still exists in that rigid form, is largely a historical remnant. Its origin lay chiefly in the attempts of the bankers of earlier generations to evade the state usury laws, at times when market interest rates exceeded the rate legally permitted; and to a lesser degree in their desire to increase their own security. At the present day, only the smaller banks, catering to small business men, make anything like a strict application of the requirement. For them there is usually only one interest rate on customers' loans, the 6 per cent maximum set by most state usury laws. Variations in market interest rates as quoted in the leading money centers either are not passed on by them to their customers at all or are reflected in the form of varying percentages of required loan balances. But the larger banks, doing the bulk of the country's banking business, have no inducement to lay down any such rigid rules for the guidance of their customers, or for their own protection. It is true that a borrower from such banks is usually expected to maintain a balance which is in some proportion to his indebtedness. But this balance arises out of the ordinary course of the borrower's business, coming from his redeposits of current business receipts; and the requirement usually specifies only the *average* balance which is to be maintained, taking one week or month with another. It does not set an inflexible minimum below which the balance must not fall, and therefore does not prevent the borrower from using the entire proceeds of a given new loan at any one time, should he so desire. The general importance of the requirement in the American banking system is further reduced by the fact that a small but grow-

ing proportion of customer borrowing is now being carried on by overdrafts. Here no minimum balance at all can be involved.

These considerations, which suggest the desirability of ignoring the term b when dealing with the American banking system as a whole, gain added weight from a further fact. In developing the limiting coefficients of maximum expansion, what is important is not the size of the average balances required to be left on deposit but the proportion of the proceeds of *additional* loans, if any, which is not actually available for use by the borrowers. As just indicated, it seems likely that for the bulk of the country's banking business this proportion is negligibly small.

On these various grounds, we believe that, in dealing with the American banking system as a whole, a more accurate picture is obtained by assuming that the requirement for the maintenance of given minimum balances does not operate to limit the availability of the proceeds of specific *additional* loans; and hence by assuming, in applying the limiting coefficients of maximum expansion, that the term b can be ignored entirely.[25] In developing the subsequent argument, which examines the relations of the commercial banking system to the central banks and to the underlying gold reserves, we shall therefore take the value of b as zero. It will be noted that this also entails defining the term k as the ratio of cash in circulation to *total* net bank deposits, whereas it has hitherto been defined as the ratio to *available* net deposits only.

With b taken as zero, k as 0.09, and r as 0.10, the form and value of the two principal system coefficients become as follows (the original equation numbers are repeated):

$$e_n=\frac{1+k}{k+r}=5.74\,, \tag{36}$$

$$f_n=\frac{1-r}{k+r}=e_n-1=4.74\,. \tag{50}$$

[25] Consultation with practical bankers confirms the conclusion that no serious error is introduced by this procedure.

These two equations are the cornerstones of the succeeding argument. Should subsequent empirical investigation show the desirability of reintroducing a positive value for b, however, the change can easily be effected by reverting to the expressions from which these equations were derived.

4. The question of changes in the term h, proportion of cash in circulation to total net demand deposits, and the question of the real relation between these two magnitudes and its significance, will be examined later (see Part V).

5. It may be pointed out, in conclusion, that comparison of the numerical values of the various single-bank coefficients with those of the parallel system coefficients emphasizes a fact long familiar. The possible expansion of loans and deposits is far greater when all or most of the banks expand together than when any one bank or small group of banks attempts to expand alone. In the present depression, the converse proposition is especially relevant. Any one bank, especially when the total number of banks is as large as in the United States, can do very little by itself alone to expand, and thus to stimulate the revival of business activity in its community; it will soon encounter adverse clearing balances that nullify most of its efforts. But if all or most of the banks can be persuaded to expand simultaneously, and at about the same moderate pace, none of them is likely to find itself in a vulnerable position, and the general process of recovery will be greatly accelerated.

[*To be concluded in next issue*]

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RICHARD CARMARDEN'S *"A CAVEAT FOR THE QUENE"* (1570)

IN THE reign of Queen Elizabeth, when serious efforts were continually made to reform the customs administration in order to increase the revenue of the Crown from foreign trade,[1] it was natural that documents should have been written setting forth the abuses practiced by the customs officials.[2] Such documents throw light upon the widespread corruption which prevailed in matters of public finance, they reveal the growing importance of the trading interests in the national administration, and they help us to estimate what proportion of the goods imported and exported escaped entry in the accounts kept by the customers. The last matter is of no less interest than the other two, for a large number of the accounts have been preserved.[3] They are bound to be used increasingly by economic historians to determine the nature and volume of foreign and coastwise commerce[4] in the late sixteenth and early seventeenth centuries,

[1] The two most important articles dealing with the Elizabethan customs administration are those of Professor A. P. Newton ("The Establishment of the Great Farm of the English Customs," *Roy. Hist. Soc. Trans.* [4th ser., 1918], I, 129–56) and Professor F. C. Dietz ("Elizabethan Customs Administration," *Eng. Hist. Rev.*, XXXXV [1930], 35–57). See also the excellent discussion of Sir Francis Walsingham's farm of the customs in the principal outports in Dr. Conyers Read, *Mr. Secretary Walsingham and the Policy of Queen Elizabeth* (Oxford, 1925), III, 383–91. I have had the advantage of the help of Dr. Read and Professor Dietz in reading over Carmarden's *Caveat*, and I have profited by a number of valuable suggestions which they have made.

[2] See, e.g., *Calendar of State Papers, Domestic*, 1591–94, p. 64; Addenda, 1566–79, p. 438.

[3] In the Public Record Office in London (*Exch. K. R. Customs Accounts* and *Exch. K. R. Port Books*). See N. S. B. Gras, *The Early English Customs System* (Cambridge, Mass., 1918), pp. 11, 140 ff.

[4] They were first used extensively by Professor Gras in connection with his study of the corn trade. See *The Evolution of the English Corn Market* (Cambridge, Mass., 1915), pp. 271–323. See also Astrid Friis, *Alderman Cockayne's Project and the Cloth Trade* (London, 1927), Appen. B and *passim;* A. K. Longfield, *Anglo-Irish Trade in the Sixteenth Century* (London, 1929), *passim*, and J. U. Nef, *The Rise of the British Coal Industry* (London, 1932), esp. Vol. I, Part I, chap. i, and Vol. II, Appen. B and Appen. D.

when the economic life of England was undergoing an upheaval of hardly less importance than that which took place at the end of the eighteenth century. How far do the customs accounts understate the actual traffic? While some attention has been paid to the customs system by both constitutional and economic historians,[5] and while it is well known that frauds were common, little attempt has been made to estimate roughly the proportion of the goods imported and exported which went uncustomed at different periods. One way of forming an opinion on the question is to examine critically the charges brought against the customs officials in manuscripts like Richard Carmarden's *A Caveat for the Quene*,[6] which we print for the first time.

We know nothing about Carmarden's origins or the date of his birth.[7] He writes as if he had been employed in the customs administration in the sixties[8] and had been active in pointing out the abuses of customs officials as early as 1565,[9] so that he was probably in his twenties at the least when Elizabeth came to the throne. His influence in the customs administration increased during her reign. He became a personal follower of Secretary Cecil, and apparently enjoyed his confidence during much of the time that Cecil held the office of lord treasurer, from 1572 until

[5] For a review of the literature on this subject see Gras, *The Early English Customs System*, pp. 3–12. Professor Gras's book is the standard work on the customs system down to the reign of Elizabeth.

[6] Vellum 1^4–6^4, 7^6, 15 cm.×11 cm.; bound in vellum and stamped with the arms of Queen Elizabeth in gilt, with gilt ornaments in the corners outside the marginal lines. On the back is stamped in gilt letters: "Carmarden Caveat For The Queene—Lond. 1572." This manuscript is now in the private library of Mr. Hiram J. Halle, of New York City. It is printed through the courtesy of Mr. Halle.

[7] Possibly information on these points could be obtained from the Sackville MSS, which are now in the Record Office, in process of being calendared for the Historical Manuscripts Commission by Professor Newton. He apparently obtained some of his information concerning Carmarden from these documents (*op. cit.*, p. 141). According to an entry in Quaritch Catalogue No. 436 (1930) about the *Caveat*, the author may have been the Richard Carmarden at whose "coste and charges" Cranmer's Bible was reprinted at Rouen in 1566. Further material concerning Carmarden may possibly exist among the Lansdowne and the Harleian MSS in the British Museum. It has not been possible, in editing Carmarden's document, to consult anything except the printed sources accessible in Chicago.

[8] See below, p. 43. [9] See below, p. 51.

1598.[10] In 1589, upon the abandonment of the policy of farming the duties on imports into London, inaugurated in 1570, the Crown resumed temporarily the direct management of the customs, and Carmarden was appointed surveyor of the subsidies of tonnage and poundage in London. This was a very important office, for it was designed to impose a check upon the collector of the duties on imports at London, a position granted to Henry Billingsley, the alderman.[11] Carmarden appears to have been zealous in advancing the interests of the Crown.[12] After the revival of the policy of farming the customs in 1599,[13] the surveyorship, which he continued to hold, was the only office in the London custom-house which retained its independence of the farmers.[14] At Carmarden's death in 1604, this office passed to his son, who bore the same name.[15]

The *Caveat* was written either in 1570 or in 1572, almost certainly in the former year.[16] It contains references to the abuses practiced by Thomas Smythe, one of the richest of London merchants,[17] when he was customer for collection of the import duties at London, an office which he had held since the beginning of Elizabeth's reign.[18] Smythe was granted the farm of the customs on goods imported into London at Michaelmas, 1570, and it is reasonable to think that, if Carmarden had been writing after this event took place, he would have mentioned it. In his manuscript he pleads against the policy of farming the customs duties;

[10] Newton, *op. cit.*, p. 138. The Cecil papers are full of Carmarden's correspondence (Hist. MSS Com., *Calendar of Salisbury MSS*, Vols. III–XII, *passim*). Prior to his appointment as surveyor, he frequently worked for Cecil on special Exchequer commissions (Newton, *op. cit.*, p. 141).

[11] Newton, *op. cit.*, p. 141 and Dietz, *op. cit.*, p. 51.

[12] Dietz, *op. cit.*, p. 53. Cf. *Acts of the Privy Council*, XXVI, 125; XXVIII, 94; XXIX, 616, 619; XXX, 361, 363; Hist. MSS Com., *op. cit.*, *passim*.

[13] Dietz, *op. cit.*, pp. 53 ff.

[14] Newton, *op. cit.*, p. 153. Carmarden was not, however, without commercial interests of his own. In 1599 he was granted a license for seven years to import linen yarn from Ireland (*Calendar of State Papers, Domestic*, 1598–1601, p. 283.)

[15] Newton, *op. cit.*, p. 153. [16] See below, n. 47.

[17] See the article on his son, Thomas Smith (or Smythe), in *Dict. Nat. Biog.* See also Newton, *op. cit.*, p. 136.

[18] Newton, *op. cit.*, p. 136.

he speaks of Michaelmas being at hand, and urges the Queen to stay all grants of customs farms destined to go into effect at that time.[19] This suggests that he was writing in the late summer of 1570, before the grant to Smythe took effect,[20] and when special attention was being paid by Crown officials to customs abuses.[21] Although Carmarden was working at about this time for the commissioners of inquiry into the customs,[22] he does not seem to have presented his document to the Queen, for whom it had been drawn up, until later, possibly not until 1582, also a year in which special encouragement was given to informers concerning customs abuses.[23] The date at the beginning of the manuscript, written with so neat a hand, was altered to "1582," and a paragraph was added explaining to the Queen that Carmarden was presenting it notwithstanding that it was "somewhat stale."[24]

The picture of corruption among state officials which the manuscript gives will suggest that the Elizabethans had little to learn even from us in matters of graft and sharp practice. Smuggling by merchants, Carmarden argues, is not the principal means by which the Crown is deprived of the revenue to which it is entitled. That is the work of its own officials, whose corrupt conduct is partly explained by the venal nature of the offices they hold. Whenever there are valuable goods or goods which have arrived in large quantities, the customer comes to an understanding with the importing merchants whereby they pay the duty on only about two-thirds. The customer then accounts for only a portion of the sum which he has received, entering less than the two-thirds in his books. But the entries often fall even farther short

[19] See below, p. 56.

[20] Newton, *op. cit.*, p. 136; Dietz, *op. cit.*, pp. 45–46.

[21] Professor Dietz informs me that greater encouragement was given to informers to ferret out customs abuses in 1570 than in any other year of Elizabeth's reign excepting 1600. It should be added, however, that 1572 was also a busy year for revealing such abuses.

[22] *Calendar of State Papers, Domestic*, 1547–80, pp. 416, 436.

[23] So Professor Dietz informs me.

[24] See below, n. 47, and p. 57. There can be no doubt that the manuscript did come into the possession of Queen Elizabeth, for its vellum binding is stamped with her coat-of-arms (see above, n. 6), and it apparently belonged to her library.

of the truth, because the "waiters" who meet the merchants or their servants upon the arrival of the ships in London, not content with the winking-money paid them and their friends by the customer, enter into understandings with the merchants to conceal a portion of the goods from the customer in return for half the duty which should have been paid.[25] Finally, the example of sharp practice given by customers and waiters encourages merchants to smuggle. Carmarden hints later on that this whole edifice of corruption is bolstered up by the connivance of high officials in the Exchequer (especially Thomas Fanshawe, the queen's remembrancer), who share in the graft with the customers, and that members of the Privy Council itself are not above suspicion.[26]

These charges apply only to the collection of duties on imports at London during the period from the accession of Elizabeth until 1570; but, Carmarden suggests, it is probable that the collection of other duties is subject to similar frauds. He holds the opinion that the reforms of the customs system introduced by Lord Treasurer Winchester in 1564 and 1565[27] have not done anything to mitigate the abuses.[28]

How far can we regard Carmarden's charges as substantially accurate, and what is their significance for the historian? On the first point there will doubtless be some disagreement, less as to the existence of the practices described than as to the frequency of their occurrence. The examples of corruption given by Carmarden are corroborated by independent evidence. Thomas Smythe, whose sharp practices as customer in 1558 and 1559 are set forth in some detail by Carmarden,[29] was apparently found guilty of defrauding the Crown in much the manner described in the *Caveat*, but was pardoned by the Queen.[30] As farmer of the

[25] See below, pp. 47–48.

[26] See below, pp. 55, 56.

[27] Newton, *op. cit.*, p. 133; Dietz, *op. cit.*, p. 38.

[28] See below, pp. 54–55. Professor Newton also takes the view that the revenues of the Crown did not benefit largely by these reforms (*op. cit.*, pp. 133–34).

[29] See below, p. 50.

[30] *Calendar of State Papers, Domestic*, Addenda, 1566–79, p. 438. Cf. below, p. 51.

customs on goods imported at London after 1570, Smythe was charged with having permitted the importation of prohibited wares, not keeping true books of account, diminishing subsidies and not entering them justly, and with having subornated officials.[31] In 1591 evidence was brought forward to show that the Crown had been defrauded of revenue by Smythe, not only when he was customer but during the whole of the time when he was farmer.[32] As to the corruption of Thomas Fanshawe, Carmarden's remark that some officials of the Exchequer were "knytt in one knot with the customers Dealings"[33] has a ring of truth when we reflect that Fanshawe must have been close to Smythe because he later married his daughter.[34]

While it is certain that all the forms of corruption depicted in the *Caveat* existed, it is impossible from this single account to determine to what extent they were practiced, and how far the records of imports kept by the customs officials fall short of the truth. From Carmarden's argument concerning the connivance between the merchants and the customer, on the one hand, and the waiters, on the other, it might be assumed that, in the case of the London imports during the first decade of Elizabeth's reign, more than half the goods escaped entry in the books.[35] That estimate is almost certainly too high. To begin with, Carmarden himself suggests that he is dealing with exceptional cases, when the goods are especially valuable or when they arrive in London in unusually large quantities. Again, he probably exaggerated

[31] *Calendar of State Papers, Domestic*, Addenda, 1566–79, p. 438.

[32] *Ibid.*, 1591–94, p. 64. [33] See below, p. 55.

[34] *Dict. Nat. Biog.*, art. on Fanshawe. For charges of concealing customs brought in 1571 against another customs official, William Burd, by the commissioners of inquiry into the customs, see *Calendar of State Papers, Domestic*, 1547–80, pp. 416, 436. On other points of fact Carmarden also seems to be accurate. He speaks of the wholesale purchase of land by corrupt customs officials (see below, pp. 46, 56). We know that Thomas Smythe bought a great deal of landed property from Sir Thomas Sackville and the Earl of Leicester (*Dict. Nat. Biog.*, art. on Thomas Smith [or Smythe] the younger). The treatise of Thomas Milles (*The Customers Replie*, London, 1604) has, despite its title, no bearing upon any of the charges made by Carmarden. It is an attack upon the Company of Merchant Adventurers, called forth principally by Wheeler's *Treatise of Commerce*.

[35] See below, p. 49.

considerably; Professor Dietz is of the opinion that the whole document is overdrawn. On the other hand, it is unlikely that cases of the sort of corruption mentioned by Carmarden were of rare occurrence. He clearly believed them to be common; and refrained from citing further examples in order not unduly to prolong the document.[36] Rather more weight should perhaps be given to his charges than to those of the ordinary petitioner of the age, because he asks for no special post for himself, and may therefore be presumed to be more disinterested than the special pleader seeking a patent. In short, the *Caveat* may be taken to show that the quantity of goods imported at London escaping entry was so considerable that the historian who makes use of the customs records to estimate the nature and volume of foreign trade cannot afford to ignore it.

Carmarden's anxiety to prevent the Crown from extending the policy of farming the customs naturally leads us to inquire whether the adoption of that policy in the case of imports into London tended to reduce the proportion of the goods which escaped entry. It has been generally believed that during Smythe's farm, which lasted from 1570 to 1589, the customs administration was much improved. This view is based partly on the fact that the revenue increased, partly on the knowledge that Smythe raised many fold the fees paid to the officials under him in order to deprive them of their incentive to accept bribes, and that he enforced the rules laid down by the Privy Council in 1565 against smuggling.[37] But Carmarden's argument is that the loss of revenue which resulted from smuggling and petty bribes was unimportant in comparison with that which resulted from the corruption of the higher officials;[38] and that farming the customs would not reduce that corruption. The farmer obviously had an interest in misrepresenting the volume of trade in order to keep down the rent which he was obliged to pay the Crown. Evidence is not lacking to suggest that Smythe failed to keep accurate accounts of the imports.[39] It is therefore worth investigating

[36] See below, p. 46.

[37] Dietz, *op. cit.*, pp. 46–47; Newton, *op. cit.*, pp. 137–38.

[38] See below, pp. 44–46. [39] See above, pp. 37–38.

whether the increase in the recorded revenues from customs during the seventies and eighties was not due more exclusively to the increase in the volume of trade[40] than has been supposed, and less to any reduction in the proportion of the goods actually imported which escaped entry.

Had the presentation of Carmarden's charges to the Queen, possibly in 1582, any effect upon the reorganization of the customs administration later in her reign? That it had anything directly to do with the refusal of the Crown to renew Smythe's farm in 1589 is unlikely. Smythe, as we have seen, had been charged with corruption before,[41] yet his lease had been repeatedly renewed. Professor Dietz has given other reasons to explain the refusal to renew it at this time.[42] But it is possible that the *Caveat* may have helped to increase the confidence of the Queen and of Burghley in Carmarden to the point where they were willing to confer upon him in 1589 the important office of surveyor, in which he was given special charge of the Crown's interest in the customs collection. And it is also possible that his arguments against the farming of the customs may have encouraged Burghley, upon Smythe's failure to offer a satisfactory increase in his rent, to resume direct control over the customs collection on London imports.

This setback for the system of farming the customs was only temporary.[43] The spirit of the age was in the direction of a greater control by mercantile interests over the policy of the Crown; and one of the ways in which the merchants made their influence felt was through the farming of the customs.[44] It was the wealth of great financiers like Thomas Smythe rather than the scruples of supporters of the sovereign like Richard Carmarden which was to prevail. It is tempting to see in Carmarden's

[40] Cf. Read, *op. cit.*, III, 383–84. Dr. Read has shown that Professor Newton was probably mistaken in assuming that Walsingham made no profit from his farm of the customs of the principal outports (*ibid.*, pp. 388–91).

[41] See above, pp. 37–38.

[42] *Op. cit.*, p. 47.

[43] Cf. Newton, *op. cit.*, pp. 147 ff.; Dietz, *op. cit.*, pp. 53 ff.

[44] Cf. Nef, *op. cit.*, II, 269–72; and Part V, chap. iv, generally.

plea, which he is eager to bring directly to the private attention of the Queen because he does not trust her councilors, an attempt to stem the tide of development which was destined a few decades after his death to contribute to the constitutional upheaval resulting in the triumph of parliamentary government. Carmarden warned the Queen, somewhat prophetically, that the subjects might pay duties grudgingly if they knew that a large portion of the revenue flowed into the pockets of private merchants.[45] If this consideration had any weight in the opposition to the impositions of the early seventeenth century, the subjects who were moved by it appear to have leaped from the frying pan into the fire. By opposing impositions they were also preventing the monarch from becoming financially independent of Parliament. And the fall of absolute monarchy removed a power whose policies were less in harmony with the interests of the principal merchants than were those of Parliament.

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[45] See below, p. 52.

A CAVEAT FOR THE QUENE[46]

Wherin is declared dyvers deceypts used towards hur highnesse by hur Majesties officers, appoynted for the receypts of hur customes in the Poorte of London, to the greate Hinderaunce of hur Majestie and spoyling of hur Subjects. And therwithal is nooted how litel to hur benefitt the Lettinge of the same to ferme doeth serve.
Compiled by RICHA[R]D CARMARDEN.

Where no hedge is, there the Possession is spoyled. Ecle. cap° 39.

In London, the 12th daye of Septembre, anno. 1582.[47]

To the mooste highe and verteous Princes Elizabeth, by the grace of god of England, Fraunce, and Irelande Quene, Defender of the faythe, etc. Longe healthe and perpetual Felicitie.

Dailie experience sheweth, moste noble and gracious Soveraigne, that there is nether noble man nor other Inferiour person, of what estate or degree so ever he or they be of, But if they shal understond them selves to be deceaved by any of theyer officers or other servaunts, to whome they have commytted the charge and truste for the receavinge of any of theyer rents, revenewes, or other goods and profitts for theyer uses, They wil not onelye accompte suche an officer or other servaunt as shal so deceave them any better then a theef unto . . . .[48] them, and seeke the meanes to recover some parte of the same he hathe so deceaved them of (if they may not recover the hoele), But also will ridd theyer hands of suche a decever in tyme for feare

[46] In printing the manuscript, we have followed the original spelling, except that the sixteenth-century abbreviations have been spelled out, and that the old use of *i* for *j* and *u* for *v* has been modernized. The capitals in the original have been kept in most cases, but such changes in the punctuation have been made as seemed necessary in order that the matter should be intelligible to the ordinary reader.

[47] The last two figures of the date have been tampered with. The first of these, which was clearly "7," has been made "8." The second was apparently an "0" which has been partly erased and made into "2." These facts, together with the internal evidence which the document provides (see above, pp. 35–36), seem to indicate that it was almost certainly written in 1570, although it has been assigned to 1572 (see above, n. 6). The two last paragraphs were added afterward, perhaps in 1572, or even later (see below, pp. 56–57).

[48] The word "unto" is inadvertently repeated.

of greater losse, and of as many of the reste of theyer servants as they shal perceave ether to have byn parteners therin or to have byn prive thereunto and have conceeled the same from them, beinge so moche to theyr hynderance. And to the contrary wil accompte of that servante, which havinge any Intelligens thereof shal reveal the same, to be not onely a trew, lovinge, and faythful servant, but also suche a one as is rather worthy of rewarde than rebuke for his good service therin don. And so no doubte wil al those that ether feare god or desier to possesse theyer owne, boethe thinke and confesse the same. Yet suche a comon wilful errour hathe of late yeares creept into the hedds of moste men, and to this daye stil contineueth (to the greate hinderaunce of your Majestie) that they accompte that deceypte which is used towards the Prince to be no deceypte at al. Nether the goods so gotten from the Prince to be evel gotten. For else, suche officers as be right wel knowen to deceave your Majestie of great abondance of your treasers, and to enriche them selfs therby, maynteyninge the same with continual wilful perjurie, should not be so wel thought of and so highlye esteamed of moste men as now adayes they be. Nether any pooer faythful subject that shal accordinge to his dewtie reveale theyer deceypts so used towards your Majestie, be so disdeyned, reviled, shunned almoste from al mens companies, and so evil thought of as now a dayes they be. Whyche undoubtedly is suche a harteninge to al falce officers as it causeth them to steale without al feare; And suche a greate discourraginge to al trew faythful subjects that know of theyer deceypts, that they had rather for gayne fal in consort with them then for conciens and dewtie sake, which they owe towards theyer Prince, to reveale the same. (As if god had not stayed my harte better then my hande) I had so don lykewise; And al for feare of lyke success now that I once had herin. And that it so is, your majestie shal playnely perceave by the perusinge of this litle booke, which I have dedicated to your highnes by the name of a *Caveat for the Quene*. The which I have named because the hole matter therin conteyned belongeth onely to your Majestie, to beware in tyme of suche deceypts as you shal perceave therin to be used towards your Highnes. And thoughe the rued and grosse handelinge therof (thrughe want of Wysdome and Learninge in the aucthor) may be some cause to move your Majestie to disdayne the same; Yet, in moste humble wyse I beseache your highnes to accept the trew effect and faythful meaninge therof, for a Juste and Lawful excuse of al wants and faults therin committed. And therwithal, moste humbly cravinge your Majesties moste gracious pardon for my bolde presumtion herin, And as your highnes tendereth your owne benefitt and the salfgarde[49] of my poore lyffe, which by this my dewtie shewed in your Majesties behalf shal greatly hazard the same, so doe I moste humblye beseache your highnes not to Imparte any thinge herin conteined to any besids your owne person; but to read and keepe the same so secreet as none

[49] Safeguard.

els may be previe thereunto, til your Majestie hathe wel considered of the same and hard me speake that which now, as wel to avoyde to[o] moche tediousnes to your highnes as for dyvers other good consideracions, I dare not write. In so doinge, as the same shal wel appere to be the meanes to bringe your Majestie to a present and continual benefitt, and moche to the contentacion of al your trew lovinge subjects; so shal it be (next under god) the onely meanes of the salfgarde of my pooer lyffe. Which els, I knowe, shal very hardly escape some soubdayne myschef (if god defend me not the better in this my Juste and lawful attempt in your Majesties behalf). Whoe, for his deerlye beloved sonnes sake, preserve your moste excellent Majestie to his honour and glorye. AMEN.

Your Highnes moste humble and loyall subject

RICHARD CARMARDEN

There be many, moste noble and gracious Soveraigne, that of late years continuinge, from tyme to tyme, even to this daye, have presumed to be suters to your highnes to have to ferme your Majesties Customs, Subsidies, and Imposts; Parte wherof by some of them, what thrughe purchased frendship and fayer shewes and promises of good service to be don therin by them to your Majestie, hathe ben optayned. But it is veary doubtful wether emongste them al there hathe byn any that by themselves, or by any other for them, have Justly and trewly enformed your highnes of the vearie Juste cause why they have byn suche earnest seuters to your Majestie for the same. For wel it is to be thought, even of the simplest, that they would not attempt so weyghtie a matter, of so greate charge, of no lesse troble, and not without as greate danger of utter undoinge themselfs and theyres for ever (if they should fayle yearly to bringe boeth ends togither), besids the envie of the people which they rightwel knowe they purchase therby, Who alredy doe, and dailye wil more and more, repyne to paye a great parte of theyr Juste tributs to the uses of theyr fellowe subjects, which holy ought to be payed to Ceasar, that is to your moste excellent Majestie. All thease hazards and dangers, I saye, they would not so willinglie embrace with the optayninge of theyr seuts, except they had a moste certayne grownd to leade them to an assuered hoope of a great gaynes [*sic*] to themselfs. Which cause of this theyr earnest seuts in theyr so great attempts, yf you had byn by them, or by any other for them, certainelie enformed, should then right wel and playnely appere to be finaly [not] to your benefitt, but rather to your assuered hindrance. And also the meanes to redresse those disorders to be far easier for your Majestie to doe, and that more certaynely (for your owne profitt) then by any of theyr helpes or servics in suche weyse proffered. And therefore it should appere, by the obtaininge of theyr requests in that

behalf beinge somoche to your maiesties hinderaunce, that they have, no doubt, kept from your knowledge the Juste and trew cause of theyr so earnest and greedie seuts. And have, peradventure, alledged some other causes that may have a veary good shew of good service pretended of theyr partes towards your Majestie. Emongst the which, this may be the principal. That they right wel know that you are greatly deceaved of your Juste dewties, by meanes that the marchaunts doe dailye steale up and convey out greate aboundance of goods with out payeng any Custome for the same. Which if it were Justly payed would amonte yearely to a great some of mony more than now it doeth. Which longe tyme hathe byn and daylie is to your highnes great hinderance purloyned by this and such lyke deceypts of the merchants from you. Partely because your officers, what for frendly acquayntance and some tyme for smale bribs, doe not give so vigelant an eye to theyr charge as they ought to doe. But cheefly because the marchants are so accustomed to steal theyr goods away uncustomed that they make it an ordinary custome so to doe. Which now, if they may gaine the orderinge and charge therof by waye of fermynge the same, hit should then so moche stand them upon to loke to the same that they should be forced to sett a parteal favor and fryndship towards the merchants in that behalf, and to cutt them shorter of theyr slyghts and shyfts that they have longe practised to Deceave your Majestie with. Which to them shal be an easye matter to doe, because they have heretofore practised the lyke tricks to help them selfs with. And suerly as thease reasons are partly trew, and therefore might veary wel serve to perswade your Majestie to grante theyr requests, so undoubtedly none can affirme any man to be fitter to fynde out falcehood then they that the best have practised the same. But yet, I muste needs saye that if thease reasons or suche lyke have byn or are theyr meanes to Induce your highnes to theyr purpose, they are al but mysts and conterfaicte coulors to caste before your eyes, that theyr Juggelinges[p] may not be apperceaved. For althoughe I muste needs say the same which peradventure they might thus have alledged (as I have gessed) be partely trew, yet are there dyvers other kynds of deceypts used, far passinge these, to deceave your Majestie with. Which if they did not right wel know, they would never have byn suche earnest seuters for the same as they have byn. For they rightwel knowe (what so ever they saye) that it is your officers that be sworne to your highnes in that behalf, that cheeflye and alonely Deceave you. And that they use, as it were, to parte staks with you of your owne goods. And also that there are fewe or no merchants at al that take up any goods uncustomed without theyr consents and procuerments so to doe. By the which it moste evidently appereth to al that know therof (as your fermers doe) that you are far more deceaved, and that of greater somes, than you could els be by the merchants onely. And therefore, what so ever they saye, I saye, and this little booke wil

[p] Jugglings.

prove, that the same is the onlye cause that they and others more have byn suche earnest seuters to take to ferme your Majesties customs, Subsidies, and Impoosts. And but for that I might perchaunce seame some thinge tedious to your highnes herin, I would at large declare how and by what meanes your officers do deceave you. Howbeit, apon hooepe of pardon in this behalf, consideringe it is for the benefitt of your Majestie and of al your trew lovinge subjects—Whome by meanes of thease and suche lyke deceypts used in other offices towards you, your highnes hath byn forced for the necessary affayres of the realme to burthen some tymes more than ether your goodwil was to doe or els should have neded, if in those and suche lyke offices you had byn treulye served; Which they for the most parte righte wel know and spare not dailye so to saye. I shal therefore by your Majesties moste gracious paciens, thoughe rudely yet truly and that as breefly as I can, declare the same. And that for the poorte of London: Inwards onely, for farther I wil not Deale than I am wel hable to prove. Thoughe by them the reste may be sone[51] Judged, which so soubdainely rise of naughte as they have don.

It is not, as before I have sayed (and as the comon voice hathe of longe tyme gon[e]) that is that the officers are content to receave some smale brybes or tryfles to lett the merchant shyfte for himself and they not to see hym; or for some smal newyeares gyfts to wynke at them al the yeare after. No, No, it is far other weyse. For by suche smale brybes, trifles, or newyeares gifts, thoughe they were many, a Customer gyvinge j^{m} li, yee ij or iij,[52] for an office of j^{c} marks[53] a yeare stipend, and some of them within x or xij yeares byenge the same twyse, and beinge before he bought his office worse then naught, by many hondreds could not in so few yeares recover the same agayne, Purchass suche landes and Lordshipps, buyld and buye suche sumpteous howses, deck up them selfs and theyres with theyr howses so gorgeously, spend so rioughteosly, keepe poorts so lordly, give fyve tymes the wag[e]s they receave them selfs yearely. By suche smale bribs and trifelinge gifts, I saye (as moste men Judge), that al this could not be so thrughly mainteyned. Nether could a poore Wayter which giveth j^{c} li[54] for an office of iiij ponds a yeare stipend, borrowing the moste parte therof to pay for the same, be hable to spend a hondred pounds yearly in his howse and within v or vj yeares after to have a thousand marks or pounds in his purs to offer for a purchasse or to laye out to usery, if there were not other meanes to come by the same then by merchants rewards onely.

Customers clarcks also could not ruffle it as they doe, and keepe greater poorts now then in your Majesties most royal fathers dayes the customers them selves were then hable to doe, if there were not other meanes than merchaunts rewards. No, No, moste noble quene, and moste gracious

[51] Soon.

[52] I.e., "£1,000, or even £2,000 or £3,000."

[53] 100 marks, or £66 13*s*. 8*d*. [54] £100.

soveraigne Lady, hit[55] cometh in by far greater gubs[56] then by suche pety bribes. And that is by these meanes. When dyvers shipps come in with wares from beyond the seaes, the marchants than[57] bringe theyr enteries to the customer, of suche goods as they have in the same shipps. The customer then, havinge those enteries, pereuseth them wel which be shortest ends and that amounte to moste mony; suche enteres he ether keepeth holy out of the booke or els he entereth but parte of them, and for the reste that is not entered he kepeth the custome thereof to his own use. And because he would be well thought of emongs the merchauntes and help to stopp theyr mouthes also, Leeste they espienge his theverie shold burste it out and then have manye Wytnesses against hym and none to take his parte or to be as deepe in the Lurche as he; ether by himself or by his underlings he wil offer frindship to the marchantes; and that is this.

When they have any fyne wares come or moche wares at one tyme, then to crave favor to have it up at sighte, fayninge that they have no advice what kynde or quantitie of goods is in theyr fatts,[58] packs, trusses,[59] or cases. Which he presently wil grante, and then cometh or sendeth to see them opened, but lyghtly never openeth them but maketh an estimate upon them, as he myndeth to pleasur the merchants, Which is comonly lesse than the Juste quantitie by one third parte, and that the Marchante saveth. The rest having taken noote of, he entereth what he pleaseth in to the booke, the reste he kepeth out to his owne use, besids comonlye enteringe chalke for cheese; and that is al for his advantadge.

But now perchaunce it may be thought that the customer can not so clenly passe awaye with suche kynde of dealings, but that ether the controler, Surveyor, theyr clarks or wayters muste needs perceave hit. That is moste trew, but when al theyr eyes of ordinary be put out how can they see, for they al may singe this songe, that theyr parte is therein. But yet as it pleaseth Mr Customer, for he gyveth to some of them stipends and to some of them rewards, as they and he can agree, so that none of them al are prvie to his gayne, how moche it is. But now, I beseache you, noote wel what doble losse cometh to your highnes therby. For, besids that the customer dothe thus deceave you, and that by theyr consents, Yet muste every one of them, not somoche but theyr clarcks also, besides theyr anual stipends or rewards which the customer giveth them to help to convey,[60] have the lybertie to help theyr frinds. By the which you are also greatly deceaved, and they leese nothinge therby.

Howbeit, that is nothinge to be made accompte of in respect of that which the customer steeleth, nether of the quantitie which the wayters and some merchants, by theyr procuerments, doe lykwise steale. Which, in my

[55] I.e., "it."
[56] I.e., "gobs," large sums of money.
[57] I.e., "then."
[58] Vats.
[59] Bundles.
[60] I.e., "steal."

consciens, rather surmonteth then is equal with the customers deceypts (thoughe they be veary greate). For they, I say the wayters, perceavinge how the customer dealeth to deceave you, not beinge content with the customers rewards as conceelers of your highnes dewties so stollen from you, but also, lyke unsatiable raveners,[61] to the uttermoste of theyer Powers play the theves also. And that is by thease meanes. They note what marchants occapie[62] freshely and that deale moste with fyne wares; with suche wil they fynde the meanes to be accquaynted (if they be not of so greate callinge as they can not be famillier with them; but yet they wilbe suer then to be accquaynted with theyr servants). And then wil they offer them great frindship, Declaringe how that theyr owne consciences beareth them record that the customes be so greate as they right wel know that poore marchants are scarse hable to lyve by theyr occapienge if they should paye theyr hole dewties. And, therefore, veary conciens moveth them to pitie theyr cases, and to healp to ease them of parte of those greate burthens, so as they wilbe ruled by theyre advice and kepe theyr owne concels. The marchants or theyr servants, now desierous of gaynes and hearinge suche sweete words and such frendly proffers, are glad to take the same whil[e] they be profferred; Leaste they, refusinge the same, then should afterward by those men or theyr fellowes be so evel entreated as they shalbe forced to make then great seute to obtaine that which before was so franckley proffered. And therefore doe render to them greate thanks, desiering to know how they may be pleasured, and to be out of danger of Loesinge theyr goods; a question not meate to be lefte unasked, consideringe that suche as they be, which stick not to become falce of theyr oethes to your Majestie, would make as litle consciens to be falce of theyr promyses and oethes to them for a greate advantage, seinge al that they doe is but for profit. And also the lyke tricks of trecherie, dailye shewed by some of them in such lyke cases, moveth men to have the more doubt of theyr proffered frindships. But they, with greate oethes and faythful promyses, doe put them out of doubte, Sayenge that shalbe salfly[63] handled in this weyse. When you have any good quantitie of goods come, before you make any enterie to the customer, let us understond what goods you have, the Juste nature and quantitie therof in every respect. That don, we wil then appoynte you out what you shal enter and paye custome for. The reste let us keep noote of; and that shal you not enter at al, but let us know in what lighter the same cometh up, and we wil ether send it home to you or els, if you doubt any thinge, we wil one or two of us followe the goods home to your howse, and then use your discression that none knowe therof. And for our paynes and pleasering you in this behalf, you shal gyve us the one half of al suche deut[ie]s as you should have paied to the customer for the Princes use. And thother half, keepe to your

[61] Plunderers.

[62] I.e., "occupy," meaning engage in trade. [63] Safely.

self. So are you wel eased of that you should have payed. And as good, we may saye to you in councel, that you and we should somewhat fare the better by hit, as to let the customer have hit; for els he wil keepe the greatest parte to himself. Nowe, the Marchants perceavinge that there is no consciens made of theyr parts in this behalf which are your Majesties sworne servants for that purpose, but that by thease meanes, afore recited, doe dailie deceave you of that which they trulie pay to your highnes use. They therapon, beinge lykwise stroken with an unsatiable and disordinate covetousnes, thinke it as good to have the hole Dewtie to them selves (if they can therby escape with it) as to paye ether the half or the hoele to them; seinge your Majestie moste comonly hath leaste parte therof. And some tyme they escape clear, some tyme also they be caught by the heele. And than theyr greate frends wil not stick to raundsom them deerly. Not for that they have than delt falcely with your highnes, but because they have broken the League of frendly thevery with them. This is a comon case, and easie to be proved by many. But especially for one *per se*. It fel out, apon a iij yeares paste, a fleminge, which longe had delt with them by waye of frindship, chanced to steale up a boxe of certaine fyne wares and riche, and made none of them privie therunto. But beinge betraied by some other that he made of his Councel was taken with the same by ij wayters. Which would not presently let him have his goods agayn, but promysed to use him frindlye. But he, doubtinge to have hard cominge by his goods agayn if they should be once out of his possession, broke out in a raage with furious words and was at a defiaunce with them, swering that, in the space of vj monethes afore, they ij had receaved of him j^{c} xl^{li}[64] for theyr parts of goods which he had taken up by theyr meanes uncostomed. At the which words, they toeke him out of the streete in to a howse therby, and so communed togither and let the matter passe.

Now, if one fle[m]inge and ij wayters did in the space of vj monethes deceave your Majestie betwixt them of ij^{c} lxxx^{li}, how moche hathe your Majestie Loste in xij yeares passed by so many merchants aswel strangers as by some Inglishe men also that have and do dailie deale in that order with the wayters. And besids this, if that matter were wel and thrughly tried, I doubt it would fal out that of al the mony that was made of those wares by that fleminge, which could not amonte to lesse then iiij thowsand v^{c} li,[65] was nether bestowed here apon the commodities of the Realme to the profitt of your subjects nor yet scars Delivered by exchange, but rather sent over in goolde or silver, ether in quoyne or bullion. Wherefore, without being farther tedious to you in the declaracion herof, I leave it to your Majesties moste excellente Wisdom to consider how hurtful these Delings be, boeth to your Majestie and to your hole Realme, in dyvers and sondry respects. And, as I have as breefly as I coulde conveniently, playnlie, and trewlie

[64] £140. [65] £4,500.

herby declared by what meanes and by whome you are dailie deceaved, and therwithal one example of the wayters dealings, So wil I also, with your highnes paciens, set out one example of the Customers Dealings lykwise. And then, as breeflye as I can, make an ende.

A Noote how moche custome, trulie paied by the merchaunts to the quenes Majesties use in the poorte of London, and was at these tymes folowinge kept back by hur highnes officer, Thomas Smythe by name, to his proper use.

Item, by hur Majesties dewties of certain gascon wynes taken to his owne use out of dyvers marchants enteries, from the xvij daye of April, anno 1558, to the xij daye of July, anno dicto. amount[et]h, with al rights, as wil appere by the particulers	m.l iij.li x.s [66]
Item, by hur Majesties dewties for xxiti enteries of other wares hoely lefte out and trewly paied by the marchants from the xxvti day of februay anno 1558 to the xxviij daye of the same, amount[et]h	lxxj.li x.s ij.d [67]
Item, by hur Majesties dewties for xliii buts[68] of spanishe wynes trewly paied by the merchants the ij daye of January anno 1559, and lefte out of the book, amount[et]h	vj.li ix.s [69]
Item, by hur Majesties dewties for xxxixti enteries trewly paid by the marchants, and were hoely lefte out of the booke, in one daye, being the xviij day of January anno 58. or 59. Which, if they were ether for fyne wares or for wynes, could not amounte to lesse then	v.c li [70]
Som total of that which at these tymes hur Majestie was deceaved of by the sayd Thomas Smythe, with the consents of the reste, amount[et]h	m.l v.c iiij.xx j.li ix.s ij.d [71]

The Penealties of forfaictures dew to hur Majestie for these dewties thus conceled is by the lawe to forfaict, to hur highnes use, the trible valewe of al suche merchandize so truly costomed by the mar-

[66] £1,003 10s. [67] £71 10s. 2d.

[68] I.e., "butts." A butt was a cask containing from 108 to 140 gallons of wine (*Oxford English Dictionary*).

[69] £6 9s. [70] £500. [71] £1,581 9s. 2d.

chants. And besids the losinge of theyr offices, to make fyne and randsom at the Princes pleaser. And to him that wil s[h]ewe it, to have the third parte for his labors. anno iij°. henry vj^{ti}. cap°. iij.

For the gascon wynes left out of the booke in three monethes, the triple valew therof at theyr Just prices wil amounte, as will appeere by the Booke of Particulers	xj.^{ml} xxxviij.^{li} x.^{s} [72]
For the xxj^{ti} enteries left out of the booke in v.[73] days of other wares, the triple valew therof wil amounte, as wil appeere by the booke of particulers	x.^{ml} ij.^{c} lxix.^{li} viij.^{s} [74]
For the xxxix^{ti} enteries lefte out in one day, the triple valew therof can not amount to lesse then	xx.^{ml} ^{li} [75]
Som total of al hur Majesties rights, dew herby, amounteth	xlj.^{ml} iij.^{c} vij.^{li} xviij.^{s} [76]

The Juste particulers herof did I, your Majesties poore faythful subject, simply and playnely, accordinge to my bownden Dewtie, present for your highnes behoulf to one that then was, and yet is, one of your Majesties moste honorable Privie Councel, the tenthe Daye of Marche, anno 1564,[77] and in the vijth yeare of your Majesties moste gracious reigne, by a booke drawen out by me of certaine writings which at that tyme I had by me, written by some of theyr owne clarks, the Juste copies wherof I have yet by me. And the same booke was pereused by the rooles of theyr accompts in the Eschequer. Which accompts were proved falce, And the booke which I presented confessed then to me by the same Councellor to whome I did present hit to be moste Juste and trew; With other lyke as greate deceypts used even then when I presented the aforesayed booke (which I also then revealed). But what benefit your highnes had at that tyme therby, I certainelie know not. But as Thomas Smythe himself hathe since that reported to one which yet lyveth, and wilbe redy to testifie the same, that it coste him ten thowsande pownds. And so was he with his fellowes restored to theyr former estate again. Which was as moche grace and favor as they could wel requyer; Consideringe they had then the meanes to repay them selfs agayn (as with out al doubte they have so don) and that with a good surplus. Which, with a smale peece of aucthoritie from your Majestie, I dare take upon me easilie to prove. And I, for my faythful service don to your highnes herin, had this rewarde. That after, I was kept as a prisoner for the space of ten dayes, to

[72] £11,038 10s.

[73] Above (p. 50) the reference is to four days.

[74] £10,269 8s.

[75] £20,000.

[76] £41,307 18s.

[77] I.e., 1565.

what ende or purpose I knowe not; but, as I was then made to beleve, because they should not knowe whoe had bewrayed[78] theyr deceypts. But as I have better considered since, and as the sequel hathe declared the same, it was to gett out of my hands the principal Writings which I had then by me, So that I should be without any thinge to shew after that for that matter; And also to be foerthecominge to be punished as a falce accuser, if the matter were not fownde Juste and trew. But the same, with al other deceypts even then used which I had presented, were so manifestly proved that they could not be Justly Denied. Yet the matter was so soubdainlye smothed in theyr behalfs that the worlde could not Judge otherwise of it but that they were Juste and trew officers and I a false accuser. And so, with many faier promyses, I was turned out to seeke my amends emongs my enemyes. Where, to this daye, I nether wante unjuste and sclaunderous repoorts, nor yet dispiteful revengs, with privie and open threatenings to the greate danger of my lyffe; For the which I was forced to complaine now a yeare and a half passed, beinge then twise threatened in your Majesties Courte at the White hal; Besids also other greate Losses and hinderauncs therby susteined, to my utter undoinge for ever; Withoute it may please god to move your Majesties harte with pittie towards me, in consideracion of thease my former faithful travailes bestowed in your highnes behalf. Thus hathe your Majestie hard how and by whome you are deceaved, with some playn examples as profes of the same. And by conjecture may partely gesse of what greate somes your highnes is yearelye deceaved of. And also may nowe playnely perceave what is the veary Juste and alonlye cause that hathe moved so many of Late yeares, and dailye, to be suche earneste suters to have your customes to ferme. In the which, if I might without feare of your Majesties displeaser or to be reprehended of presumption, be bolde to gyve my simple advice, It should be, as I am wel assured would be moste for your profitt and beste to the contentacion of al your trew lovynge subjects, That is, not to Imparte the honour and profitt therof to any of your vassals and subjects, which hoely and alonely apperteyneth to your moste excellent Majestie. Leaste that your faithful subjects, apperceavinge that a greate parte of theyr dewties, which they shal then pay to them in your Majesties name, shal goe to the particuler profitts and uses of theyr fellow subjects. And peradventure, beinge then ransacked and evel entreated by them for the same (as it is not other weyse to be looked for), shal then beginne to forget theyr dewties therein; grudging to paye any at al til reformacion be had for the same. And so shalbe cause to bringe that again in question which now of al is allowed without question. (Thoughe truly paied by few, and that onely for want of dew reformacion Don apon Juste and trew Informacion gyven.) Which being here of my parte moved under al humillitie and dew obediens to your Majestie, thinke it a thinge veary meate and necessary to be in tyme for-

[78] Betrayed.

seene. But nowe perchaunce some of theyr welwillers (as they have many about you) if they shalbe made privie herunto, or have any Intelligence herof, wil in the defence of your officers and to my Discredit make divers objections against me; to thende to perswaede your Majestie not to gyve any credit unto me at al, nether to medle in any of these matters, but to refer the reformation therof to them; emonge the which it may be that these may be some:

1. Firste, that those things were of my parte uttered more of mallice or spite for some previe grudge that I then laie to them for some Injury that they had don me, then of any zealous entent towards your Majestie for the trew reformation of the same; or els I should not have byn so shaken of[f] with out rewarde for my service therin don.
2. Or els that I did it apon hoope to have gotten some of theyr offices, to have mended my estate withal (which than was not very good), which, if I had optained, woulde then possible[79] have shewed my self as falce to you therin as they then did.
3. And if it were not so then, yet now it can not be chosen but that it is for some suche entent. For that it is unpossible for them to deceave your Majestie now as they than did, there are suche streight orders provided in that behalf. As books of prechment,[80] the Leaves nombred, and drawen thrughe with whipcord and fastened with greate seales, besids divers lyk orders; so that they can now nether leave out any Leaves nor alter or change any thinge that is once entered. (Whiche falce tricks of theyrs I also firste reveled.)
4. And if it so be that al were trew, yet wil they say there is a more fitter place apoynted for the openinge of suche matters; Where beinge hable to prove the same, I might withoute the troblynge of your Majestie have boothe don you as good service and have gotten as moche benefitt to my self therby as theese wayes; Which is in your highnes Exchequer.
5. Or if I had not bin disposed to have delt there, ether for doubt of any parciallitie to have byn shewed, or for want of habillitie to have followed the seute; Yet wil they say it had byn fitter for me to have presented the same to some of your Majesties moste honorable Councel. Where boothe I might have byn sewer[81] to have had the matter Indifferentlye hard and tried, and also to have had a good staye to sticke unto to have contenanced out my matter the better againste myne enemies and theyer frends. And besids that, being wel hable to have proved the same, not to have byn unrewarded and wel thought of.
6. But in this dealinge I shew myself rather to be a disturber of a comonwealthe then a trew meaner of the . . . .[82] reformacion of any suche great Disorders. And therefore wil holye perswade you not to gyve eare to any

[79] Possibly. [80] Parchment. [81] Sure.

[82] The words "of the" are inadvertently repeated.

suche sclanderous reports, wishinge your highnes not to troble your hed with every such vayne blaste that proceadeth from every suche busye and light heded fellowe.

Thease, and suche lyk perswasions, no doubt but might moche prevayle with your Majestie against this my pooer goodwil and faythful dewtie shewed, Especiallye beinge made by some soche as your Majestie thinketh best of and reposethe moste truthe in, Were it not that the same should be partely answered aforehand.

1. Therefore, to the firste, I saye that, as for spyte or mallice, I nether ought nor owe them any. Thoughe for spoylinge me of my goods (as wrongfully as they have don some others) they have deserved hit at my hands. Nether doe I envie theyr felicitie at al, thoughe I can not chuse but deteste theyr wicked and falce Dealings (as everie good subject ought to doe) consideringe how moche the same redoundethe to the hinderaunce of your Majestie and spoylinge of your subjects. But, be it that it were for spyet or envye, being of theyr parts so dewly deserved and theyr falce delings so Justly proved, Doeth that make them ether the trewer servants or me the worser subject to your Majestie? or is that any Juste cause why I should for my faithful service be so evel rewarded, and they in theyr falcehood so moche favored? I suppose no.
2. As for any hoope I did it upon, or doe, to gett any of theyr offices, I proteste before God and your Majestie that I seeke it not, but leave them uncraved to be bestowed upon those that be more worthier of the same than ether they or I are. Nether may I nor any other pooer faythful subject of yours have any hoope at al to gett any of them (thoughe we should neaver sowel deserve them), No more than your highnes may hoope to be trewly served in any of them (thoughe you never so graciously bestowe them), so longe as they may be permitted to be bought and sould frome one to an other, as nowe a dayes they be. Which, by the way, I muste needs saye is the firste and principal cause that moveth them to deale so falcely towards you. For other weyse suche greate somes as they gyve nowe adayes for suche offices could not agayn be recovered, thoughe they remayned fortie yeares in office.
3. But that now they nether use, nor can use, any suche falce tricks to deceave your Majestie with, because of the new orders taken in that behalf. Truly, of al other that is the moste slenderest argument that can be alledged to suche as knowe how they have continued, nay rather encreased, in theyr falce delings towards you. For to what purpose servethe ether books of prechement, or leaves nombred, or great seales, and suche lyke orders; when it is, with smale aucthorite from your Majestie, easie to be proved that the same which they were wont to teare out of theyr books now never comethe in to the same.[83] Serve thease newe orders, than, to any other ende but to

[83] The particulars of accounts were always kept in books after 1565. Prior to that time they were sometimes kept on rolls. But the use of books was ordered as

be as a man might saye clooks[84] for the raigne, or as dyme[85] mists and conterfaicte coulers to caste before your eyes. And that the wayters use theyr ould dealings stil, more than ever they did, is lykwyse as easye to be proved.

4. But to saye that theschequer had byn a fitter place to have opened this mater in then to have trobled your Majestie therwith, I would say so to[o] were it not that I know the contrary. For I doubt it would fal out, if this matter should be thrughly handeled, that some of those that sitt theere (and that not of the symplest) be of councel herin, and knytt in one knot with the customers Dealings. For els how could Master Fanshaw[86] Justly reporte that he was the worse for me, for my dealing in those matters, by a thowsand pownds, except he had helpe[d] to pay parte of the ten thowsande pownds which Thomas Smythe sayed he payed for the cleeringe of those matters.

5. And to open it to any of the councel, although it becometh me and dewtie byndeth me not to speake, write, or thinke other wyse of theyr honors than good and honorable, yet the right deere experienc[e] which I alredy have had of some of theyr dealings herin hathe forced me to forsake that meanes. And yet, not without firste theyr Denial to this my profered service before, I would make this atempt.[87]

6. And therefore, since it appereth that nether of those ij meanes wold wel serve me, I leave to your Majesties princely prudence to Judge whether I was not forced now of necessitie to presume to deale this wayes, except I should ether not have Delt therin at al or els to have so Delt in the same as I right wel know should lytel have prevayled for your Majesties benefit.

In deede, I muste needs confesse I myght have made my meanes by some suche nobleman or Councelour as I could beste have Judged of, for the openinge of thease matters to your Majestie. Which I also had don had it not byn for feare that therby I myght perchaunce have don more hurte than good in divers respects. Wherefore, after longe deliberacion had with my self herin, wel wayenge[88] al doubts and dangers, I could in the ende in my simple Judgment fynde no better meanes to let your highnes be Justly and trewly enformed therof than in this order as I now have don. For nowe whome so ever the matter may touche, yet may your Majestie touche

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early as 1428 (Gras, *Early English Customs System*, p. 141 n.), and Professor Gras tells me that we meet with plenty of books, as distinct from rolls, even in the fifteenth century.

[84] Cloaks. [85] Dim.

[86] Thomas Fanshawe (1533–1601), remembrancer of the Exchequer, an office in which he succeeded his uncle, who bore the same name, in 1568 (*Dict. Nat. Biog.*).

[87] The meaning of this sentence is that Carmarden would not be appealing to the Queen had he not already attempted unsuccessfully to get the ear of the Privy Council.

[88] Weighing.

none other therwith then best shal lyke you to doe. And yet without trobelinge of many heds may your self, with smale advice, fynde easier and better meanes to redress al thease disorders, and that more to your present and continual benefitt, and without al doubt no lesse to the assuered contentacion and great rejoycinge of al your trew lovynge subjects, than by your fyne fermers Devic[e]s you shal obtayne.

Moste humblie cravinge your Majesties moste gracious pardon for this my bold and rude presumption herin. And therewithal one onely sewte I make, which I also moste humbly crave at your Majesties hands to obtaine. That is, as your highnes tendereth thassuered redresse herof, and thobtaininge of the present and continual benefitt that wil growe to your highnes herby: not to suffer any besids your owne person to be privie herunto til your Majestie hath boeth wel considered of and hard me speake that which to avoyde to[o] moche tediousnes to your highnes I can not now write. For if you should, these inconvenyenc[e]s would undoubtedlye ensew. Firste, they have with your monye purchased so many frends, and so greate, and that of the best of those that be nighest about you in every office, as if they, or any of them, may have any inckelinge herof, they shalbe shewer then to have war[n]inge gyven them. Wherby, they shal have tyme to convey aswel theyr books, noots[89] of deceypts, as theyr goods, moveabl[e]s, monye, and treasures, As also to make transporte of theyr lands which they have purchased with your highnes treasers, which they have stollen from you. And besids wil fynde the meanes, with the helpe of theyr frends, to stopp manye gapps which should make againste them as pro[o]fes of theyr dealings. And so wil overthrowe al my faytheful travayles bestowed herin for your Majesties behalf.

Whereas, to the contrary, if your Majestie please to keep the same secreet accordinge to my sewte; And yet in the meane tyme, because that Mychaelmas is at hand, hit can not be evel, but a veary good preparative, to make a staye of al suche grants as your Maiestie hathe made to any that have had, have nowe, or should have had any parte of your customes to ferme; Your Majestie shal then sone[90] after wel perceave, as I have alredy sayed, without the trobelinge of manye heds the matter may be so soubdainly taken and so wel redressed as can be desiered. The whiche not I onelye, but al your trew lovynge subjects, doe longe to see for the continual wealthe of your mooste excellent Maiestie. Whome the almightie father, for his onelye sonne our Saviour Jesus christes saeke, preserve, and grante with longe lyfe and al pro[s]peritie Longe to raigne over us, to his honour and Glorye, AMEN.[91]

[89] Notes. [90] Soon.

[91] The original document clearly ended here. The paragraph which follows is in another ink. It was added some time after the original document had been written.

Althoughe dewtie byndeth me to gyve my dew attendæunce apon your Majestie apon the delyvery herof; Yet, consideringe the great daunger which I stond in by reason of the nomber of enemyes which I have purchased herby, I have thought good moste humbly to crave your Majesties moste gracious pardon in that behalf; meaninge imediatly apon the delyvery herof, for the avoyding of suche dangers, to retorne to London to my poore howse, which is in St Mary Hill Lane by Billings gate, next unto the howse of Mr John Bassett, sergeant of your Majesties Chapel. Where I entend, by Gods grace and your Majesties moste gracious favor, to attend your Majesties moste gracious Will and Pleasure.

verte foll[90]

Albeit the date herof be somewhat stale, yet I moste humblye beseache your Majestie to accept my poore faithful good [w]ill, for I had presented the same to your highnes immediatly apon your last cominge to Wyndsor, But that I was comaunded not to enter within the towne in peyne of Deathe, for that as the officer then told me such was the effect of the Proclamacon then, there made againste al suche as should come from London. By force of which comaundement I was glad to returne, thoughe agaynste my Will for that I knew right wel by report that some thynge shold passe your Majesties hands against your benefitt,[91] before your highnes could be advertised herby to beware therof.

[90] This direction is in still another ink, like that of the entry which follows on the reverse side of the folio.

[91] This may possibly be a reference to the granting of the farm of the London import duties to Thomas Smythe in 1570 (cf. above, pp. 35–36).

TREATMENT OF CREDIT IN CONTEMPORARY MONETARY THEORY[1]

NEARLY a hundred years ago John Stuart Mill remarked that "the functions of credit have been a subject of as much misunderstanding and as much confusion of ideas as any single topic in Political Economy."[2] This indictment would seem to be as true today as it ever was, owing largely, I believe, to the ambiguity of the term itself. It is possible to distinguish many economic meanings of the term "credit." It is used in current literature, for example, to indicate such various things as confidence in general, the ability to borrow, all evidences of debt, those evidences of debt that are used as means of payment, demand deposits, bank loans and investments, and bank loans and investments plus security loans made by "others."

Monetary writers since Mill[3] have generally used the term to indicate means of payment other than money, although a formal definition has seldom been given. Even when the term is defined, care is not always taken to make the definitions, which usually bring in attributes of trust or confidence, conform to the very concrete uses to which the term is subsequently put. Phrases such as "a 4 per cent expansion of credit per annum," for instance, can hardly relate directly to the quantitative measurement of such an abstract phenomenon as "trust." Jevons defined credit as "nothing but the deferring of a payment,"[4] and then realized that not

[1] For assistance in gathering materials for this study I am indebted to the Harvard Committee on Economic Research. I also wish to acknowledge my indebtedness to Mr. R. C. Hinton for advice on many points.

[2] *Principles of Political Economy* (Ashley ed.; London, 1923), p. 511.

[3] Although Mill's treatment of the subject was not new, it became the standard doctrine. The general drift of his reasoning, and such statements as "credit . . . . is purchasing power" and "credit, in short, has exactly the same purchasing power with money" unquestionably tended to identify the term "credit" with the concept of means of payment, even though exception may be taken to some of the instruments which he regarded as purchasing power. See the *Principles*, pp. 514, 532.

[4] Jevons, *Money* (London, 1876), p. 233.

all credit defined in this sense is purchasing power. "It is extraordinary that few writers on currency have remarked the deep difference between commercial documents which bear interest and those which do not. On this point turns the possibility of their forming representative money."[5] Marshall, in his evidence before the Gold and Silver Commission, used the term infrequently; when he did so, it was usually in the sense of deposits.[6] In his *Money, Credit and Commerce*, the term is used constantly but is not defined. Sometimes it appears to mean deposits, sometimes loans, but usually confidence in general. Yet he wrote that "with every expansion and contraction of credit prices rise and fall."[7]

Mr. Hawtrey, after agreeing with H. D. McLeod that "Debt and Credit are different names for the same things"[8] and that "a bank credit is merely a debt, differing from other debts only in the facilities allowed by the banker for transferring it to another creditor,"[9] proceeds, without further discussion, in the remainder of his *Currency and Credit*, to restrict the meaning of the term to those debts only which are means of payment. Similarly, Professor Pigou speaks of "claims on capital, which is credit"[10] but uses the term as being equivalent to bank deposits. Mr. Keynes, who makes reference to bank deposits as credit in his *Tract on Monetary Reform*, evidently made an attempt to avoid the use of the term in his *Treatise on Money;* it does not appear in his chapters on definitions. Yet in the later chapters of the *Treatise* the term frequently occurs in the sense of demand deposits.[11] I am not sure precisely what meaning the term has when he speaks of the credit cycle, which is defined as "the alternations of excess and defect in the cost of investment over the volume of saving and the accompanying see-saw in the Purchasing Power of Money

[5] *Ibid.*, pp. 239–40.

[6] See, e.g., *Official Papers* (London, 1926), p. 37.

[7] Marshall, *Money, Credit and Commerce* (London, 1923), p. 261.

[8] R. G. Hawtrey, *Currency and Credit* (3d ed.; London, 1928), p. 4.

[9] *Ibid.*, p. 5.

[10] A. C. Pigou, *Industrial Fluctuations* (London, 1927), p. 124.

[11] But see *Treatise on Money*, II, 15, where the term covers both time and demand deposits.

due to these alternations."[12] Professor Taussig regards credit as purchasing power other than money, of which the larger part is bank deposits subject to check.[13] Professor Allyn Young, who was keenly aware of the ambiguity of the term, made it clear that when he spoke of credit simply he meant bank deposits subject to check.[14]

Thus it becomes evident that the term was in the way of acquiring, among monetary writers, a fairly precise connotation: means of payment represented by demand deposits. In recent years, however, and particularly in America, it has become increasingly identified with something else—loans of all kinds, and particularly bank loans and investments. An explanation may be that bankers and business men, who, following accounting practice, have always looked upon credit as what is owing them, have, of late, taken a more prominent part in monetary discussion, and their usage has perhaps influenced professional economists. At all events, people speak today of agricultural credit, book credit, speculative credit, instalment or consumption credit, and so on.

When a term has acquired several distinct meanings, one cannot, of course, arbitrarily call one of them incorrect; in this case, e.g., loans. There is, however, grave danger that writers and readers will not always realize that what is true of a word used in one sense may not be true of the word used in another. The danger is particularly serious in monetary theory since, as we have seen, credit has become identified with the concept of means of payment and, consequently, with all problems associated with the value of money. When, therefore, it is applied to "loans," there is danger that what is predicated of means of payment will be made to apply also to loans. This seems to be precisely what has happened. The remainder of the present paper will be concerned with the confusion that has resulted in recent monetary discussion from the ambiguity of the term.

Banks derive their peculiar economic significance not from the

[12] *Ibid.*, I, 277.

[13] F. W. Taussig, *Principles of Economics*, II (New York, 1922), 419–20.

[14] See R. T. Ely, *Outlines of Economics*, chapter on "Credit and Banking" (New York, 1923).

fact that they are lenders—there are many other lenders—but from the fact that they furnish, in modern countries, almost the entire supply of the community's means of payment. Hence there is ample justification for distinguishing those bank debts which are represented by demand deposits from all other debts. Loans, on the other hand, are not means of payment any more than are houses or wheat. They must all be exchanged for demand deposits or cash before they can be "spent." Apart from their connection with demand deposits there is no logical reason for distinguishing bank loans and investments from other loans. In other words, if by credit is understood loans and investments, it appears quite arbitrary to restrict it to bank loans and investments. As Walter Leaf, who used the term in this sense, quite consistently pointed out, banks supply only a bare fringe of the credit needs of society.[15] Similarly, former Governor Young of the Federal Reserve Board was skeptical of the effectiveness of the Board's power to exercise a stabilizing influence, since the probable extent of the system's open-market operations was only 500 million out of the 200 billion dollars of "credit" outstanding.[16] Others have not gone so far, yet have included security loans made by others with bank loans and investments. The Federal Reserve Board adopted this course in 1928–29. Likewise, Dr. W. R. Burgess justified the restrictive Federal Reserve policy in 1928 by calculating in this way an expansion of "credit" of 8 per cent in a year, which was "quite out of relation to the requirements of business."[17] If he had understood by "credit" demand deposits, he would have found that there had been an actual contraction in 1928.

The reason why some writers who obviously mean to restrict the term "credit" to means of payment fail to see the danger in their next step—that of identifying it with bank loans and investments—is that they believe deposits and earning assets to be merely equal and opposite entries on bank statements. Changes in the volume of the former, if this were the case, must exactly cor-

[15] Walter Leaf, *Banking* (London, 1926), p. 97.

[16] *Stabilization Hearings, 1928*, p. 411.

[17] *Review of Economic Statistics*, February, 1929, p. 25.

respond with changes in the latter. Actually, however, they do not correspond.

In the first place, banks, without increasing their deposits, may increase their earning assets simply by increasing their liabilities in the form of capital, surplus, and undivided profits, or by decreasing the proportion of their assets which they keep in the form of cash reserves. Moreover, member banks who lose cash through adverse clearing-house balances and customers' demands for cash can, by borrowing from the reserve banks, maintain their earning assets unchanged while their deposits are shrinking. It was for these reasons that loans and investments increased in 1928 even though deposits declined. Again, a change can occur in loans and investments unaccompanied by a corresponding movement in individual deposits simply through a change in inter-bank and foreign bank deposits in the system's balance sheet.[18]

Another important consideration, which is overlooked by those who assume that changes in the volume of loans accord with changes in the volume of means of payment, is the distinction between time and demand deposits. Time deposits are more properly regarded as investments, which must be exchanged for demand deposits before they can be spent. Their velocity of circulation is so low—most banks in the United States are forbidden by law to allow them to be checked against—that one may safely disregard them in discussing the forces affecting consumers' incomes and prices.[19] Yet they account for about 40 per cent of loans and investments of banks. An increase in loans and investments may, of course, accompany an increase in either time or demand deposits. Some writers have declared that the growth of time deposits, because of lower reserve requirements, has resulted in an expansion of credit. But if by credit is meant means of payment, the opposite is true, since the growth of time deposits tends to diminish the proportion of a given amount of reserves that can be held against demand deposits. In so far as hitherto idle demand

[18] If the Federal Reserve System included all banks in the country, the "due to" and "due from" other banks item would be equal. As it is, the former exceeded the latter in 1930 by over 2 billion dollars.

[19] Except in so far as their movements affect demand deposits.

deposits have been shifted to the time classification, we might either say that the effective volume of means of payment has not diminished or that the velocity of circulation of the means of payment has increased. It would seem that logically the latter course is preferable since the number of units of means of payment and the number of times these units are spent are quite distinct concepts, whereas if we attempt to distinguish between what are and are not means of payment according to the relative activity of deposits, all precision is lost.[20]

Some writers appear to feel that no distinction between time and demand deposits should be drawn because of the fact that, while legally time deposits are withdrawable after notice, actually they are payable on demand. It is said that a time deposit is "a sort of secondary cash reserve" for a business corporation and may be "as commercial in character" as a demand deposit.[21] This, however, does not seem to be the important distinction. On this basis, government securities, call loans, and indeed any property possessing good marketability, which can be realized upon in a few hours, should be included with demand deposits. The point is that demand deposits do not have to be realized upon in order to be spent; they are already means of payment. The basis of the distinction, in other words, is that demand deposits are subject to check while there are various restrictions placed upon the transference of time deposits which almost completely prevent them from serving as means of payment.[22]

[20] I am here concerned more with clearness and consistency of monetary concepts than with questions of fact. Actually there does not appear to be any evidence of a pronounced shift of large idle demand deposits to time deposits in the post-war period. See D. R. French, "The Significance of Time Deposits in the Expansion of Bank Credit, 1922–28," *Journal of Political Economy*, December 31, 1931, pp. 759–82.

[21] H. L. Reed, *Federal Reserve Policy, 1921–30* (New York, 1930), pp. 58, 118.

[22] Incidentally, this also raises the question as to the propriety of calculating a velocity of circulation of time deposits based on withdrawals. It is not the time deposits which are being spent but demand deposits or cash. Hence, if the velocity of circulation of demand deposits and cash has been calculated separately, there is danger of double counting. Again, from the point of view of means of payment, there appears no good reason for the common practice of excluding government deposits and their velocity from calculations of the Fisher equation of exchange.

I propose now to turn to some recent writings which, I think, illustrate the danger that a theory, developed in connection with means of payment, may be applied to loans and investments through the ambiguity of the term "credit." Since, with leading monetary writers, credit has come to mean demand deposits, an abnormal expansion of credit has been held to cause inflation. Some writers, understanding credit to mean loans and investments, have been led to maintain that it is a rapid expansion of loans which causes inflation, without attempting to work out a relation between loans and the value of money. It has become almost a fashion to refer to the post-war period up to 1929 as one of inflation due not to increased velocity but to excessive expansion in the volume of credit. These opinions must have been based on the movements of loans and investments; the actual figures of demand deposits (see below, p. 70) can hardly be said to warrant such a conclusion. This view is doubtless so familiar to the reader that I shall content myself with two examples, though many more might be quoted. Mr. Carl Snyder calculated an average increase in bank loans and investments of over 6 per cent per annum from 1922 to 1928, inclusive, and asserted that "this is clearly in excess of the increase shown by production, manufacture, or any other measure of trade."[23] Mr. C. E. Persons believes that "the existing depression [1930] was due essentially to the great wave of credit expansion in the past decade."[24] Evidence of this wave of credit expansion is to be found in the increase in commercial and savings banks' loans and investments, all mortgages, volume of securities outstanding, and instalment selling. The increase in all these items leads to a "temporary increase in the nation's purchasing power."[25]

Mr. Carl Snyder's work would appear to afford an illustration of the danger of identifying bank loans and investments with credit when the term is intended to cover means of payment. His well-known thesis is that since the velocity of "currency and credit

[23] *Review of Economic Statistics, 1928*, p. 50; see also *Proceedings of the American Statistical Association, 1930*, p. 90.

[24] Mr. C. E. Persons in *Quarterly Journal of Economics*, November, 1930, p. 94.

[25] *Ibid.*, p. 129.

. . . . in normal times fluctuates within narrow limits and parallel to the activity of trade" it follows that "the general level of prices will correspond pretty closely to the changing volume of the purchasing media."[26] In this rather strict formulation of the quantity theory, credit should obviously be taken in the sense of means of payment other than currency. Mr. Snyder, however, speaks of bank credit

> in terms largely of total loans and investments, since these appear to afford the best practical index, or measure, that we have of the vast total of all credit by which the business of the nation is carried on. From time to time ingenious efforts have been made to think of bank credit in other terms, as of demand deposits, or to imagine that time deposits converted into investments differ from other forms of bank credit in their effect. But these latter seem rather artificial distinctions, and have little discoverable significance in reality.[27]

I have already suggested grounds for distinguishing clearly between demand deposits and loans. Surely, the Fisher equation of exchange can only be intelligible if M and M' are taken to represent the community's means of payment. Most other writers on the equation of exchange have, like Fisher, identified M' with demand deposits. Mr. Snyder's main reason for not doing so would appear to be that "of the relationships which, I make bold to suggest, seem now established between credit and trade none is obtainable from such artificial segregations as of 'demand deposits.' "[28] If, then, as Mr. Snyder suggests, there is no established relationship between demand deposits and the price level, it is difficult to see how he can maintain his thesis that the general level of prices will correspond pretty closely to the changing volume of the purchasing media.

Professor H. L. Reed's book, *Federal Reserve Policy 1921–30*, affords another illustration of the ambiguity of the term "credit." Although the term is used on almost every page, it is never defined. At one place the criterion of "exchange media" is invoked, which would limit the term to demand deposits, but this is promptly abandoned by including those time deposits that have

[26] Carl Snyder, "New Measure of the Relations of Credit and Trade," *Proceedings of the Academy of Political Science*, January, 1930, p. 33.

[27] *Ibid.*, p. 17. [28] *Ibid.*, p. 17.

been shifted from the demand classification.[29] To show that speculation does not absorb "credit," total deposits are used. Occasionally bank reserves are used as an index of "credit" movements. In the great majority of cases, however, the word is used synonymously with bank loans and investments, and most debatable conclusions relating to Federal Reserve "credit policy" follow.[30] After using the word in these widely differing senses, Professor Reed advises the reserve administration to confine "credit expansion to a rate closely related to the country's long-time physical growth"[31] without indicating which of his various meanings he has in mind.

Other instances of the confusion arising from the practice of calling loans credit, while still thinking of the term as connoting means of payment, are to be found in many writings on instalment or consumption "credit." It is often held that the extension of instalment selling constitutes a net increase in consumers' incomes and demand for goods. It is forgotten that finance companies only transfer means of payment and do not create them. The finance companies must themselves be financed. The extension of instalment selling means that demand deposits are spent directly in purchases for consumption, instead of being spent first as expenses of production. Probably some increase in consumers' incomes is likely to be brought about in this way, owing not to the creation of new means of payment but to the increased circuit velocity of the existing means.[32]

Similar to the problem of instalment credit is that of book credit. If, for example, a great distributing organization like R. H. Macy were to shift from a cash to a three months' credit basis, it would appear at first sight that consumers' effective demand for goods would be increased by as much as the sales. Looking at the question more closely, however, we must inquire how the depart-

[29] Reed, *op. cit.*, p. 173; cf. also p. 58.

[30] See the present writer's review of Professor Reed's book in the *American Economic Review*, March, 1931, pp. 162–64, and his Reply in the September, 1931, issue, p. 501.

[31] Reed, *op. cit.*, p. 184.

[32] In Keynes's analysis, it would tend to bring about a rise of prices in so far as it decreases "saving."

ment store is able to replenish its inventory from day to day. If it does so by disposing of some of its liquid non-merchandise assets, such as government bonds, and pays cash for new inventory, what has really happened is that the purchasers of the bonds have turned over their means of payment, via the department store, to consumers to spend. Saving, in Keynes's sense, has diminished. The same conclusion follows if we conceive of an extension of book credit all along the line of production. Some persons, perhaps even the ultimate factors of production, must forego payment for services performed, and their decreased power to spend must be balanced against the increased consumption of the ultimate consumers.

Apart from its significance as a matter of close thinking and careful reasoning, the confusion resulting from the ambiguity of the term "credit" affords, I believe, a clue to much that, at first sight, seems inexplicable in Federal Reserve policy in recent years. It has been a commonplace of monetary theory that the concern of a central bank is with the control of the volume of means of payment. It is through its control of this factor that it may affect prices, interest rates, gold flows, and business conditions generally. When the leading monetary writers have discussed problems associated with the control of the volume of credit, they have always had in mind control of the means of payment. The Federal Reserve Board, however, following business usage, understands, by the term, loans and investments. The control of the volume of credit has meant to the Board not the control of the means of payment but of loans and investments of member banks. The framers of the Federal Reserve Act and the administrators of the system appear to look upon the Federal Reserve banks as agencies whose primary purpose is to "accommodate" commerce and business by rediscounting commercial loans. The term "accommodate" is vague. The man in the street would understand by it the provision of loans. The monetary theorist, on the other hand, would more probably think of it as such provision of the means of payment as would enable purchasers to take off the flow of goods at current prices. That the first view is the one adopted by Federal Reserve authorities is indicated by numerous references in

official publications. In the *Tenth Annual Report* of the Board, which one member has since referred to as the most competent statement of the fundamentals of modern reserve banking policy,[33] it is definitely stated that "it is clear that the accommodation of commerce and business contemplated as providing the proper occasion for the use of the credit facilities of the Federal Reserve banks means the accommodation of agriculture, industry and trade."[34] Hence, when the Board remarks that "the resources of the Federal Reserve system are ample for meeting the growth of the country's commercial needs for credit, provided they are competently administered and protected against seepage into uses not contemplated by the Federal Reserve Act,"[35] it probably has in mind any increase in the demand for commercial loans.

Now, as Ricardo pointed out, there is no necessary connection between the issuing of money, or, in modern terms, the creation of deposits, and the current borrowing of merchants.[36] The "needs of business" criterion, which played a leading rôle in the banking-currency principle controversy in the nineteenth century and which is today often invoked by the Board, would, in fact, lead to a policy quite different from one that would commend itself to the monetary theorist. Commercial loans normally increase during the upswing of the business cycle and decline in the downswing. Hence, a strict application of the "needs of business" criterion would involve an expansion of means of payment during the upswing and a contraction during the downswing of the cycle. But if, for example, a stable price level is to be aimed at, the needs of business for means of payment would frequently dictate a contrary movement. In other words, the demand for loans and the demand for means of payment vary inversely. In the upswing of the cycle the disutility of holding idle balances increases owing to the greater opportunities for profitable investment; but, for the same reason, there is also an increased demand for loans. On the downswing the lack of opportunity for profitable investment leads

[33] A. C. Miller, *Stabilization Hearings, 1928*, p. 214.

[34] *Annual Report F.R.B., 1923*, p. 33. [35] *Ibid., 1929*, p. 3.

[36] "Plan for the Establishment of a National Bank," *Works* (McCulloch ed.), p. 503.

both to a decreased demand for loans and an increased demand for deposits to hold. Consequently, in times of depression, it is possible to maintain that "credit" is both redundant and scarce, depending on the meaning of the term.

The fact that the reserve administration understands credit to mean loans, and conceives that its primary concern is to satisfy the commercial needs for "credit," would point to the rather startling conclusion that the growth of the means of payment under the Federal Reserve system has been largely a matter of accident, or at best, an incidental by-product of the Board's policies. There are other considerations, in addition to those already mentioned, which lend support to this conclusion. In the authoritative *Tenth Annual Report*, for instance, there is a good deal of discussion of the qualitative aspects of "credit" (loans), "productive credit" being contrasted with "speculative credit," but there is no mention of the function of a central bank in controlling the community's means of payment. Most significant of all is the fact that while an enormous mass of statistical data is available on the composition of member bank assets, there does not exist in any of the system's publications, so far as I am aware, a series of demand deposits properly adjusted in order to obtain means of payment.[37] The figures from which such a series can be calculated are obtainable for member banks at the irregular call dates only.

Table I presents a series of adjusted demand deposits for all member banks, 1921–31. The figures are adjusted by adding to demand deposits certified checks, travelers' checks, and government deposits, and deducting all items in course of collection. "Net demand deposits" are distorted by the inclusion of "due to" and "due from" items; simple demand deposits involve double counting and omit significant items. The percentage changes in total loans and investments are presented in Table II. The figures from which the percentages are derived are readily available and are not given here.[38]

[37] The *Report of the Committee on Member Bank Reserves*, 1931, in so far as it directs attention to deposits and their velocity, makes a distinct advance in official banking theory.

[38] See *Annual Report F.R.B., 1930*, p. 95.

TABLE I

ADJUSTED DEMAND DEPOSITS MEMBER BANKS, ON CALL DATES, 1921–1931
(In Millions of Dollars)

1921	
April 28	12,658
June 30	12,635
Dec. 31	12,576
Average	12,623
1922	
March 10	12,528
June 30	13,278
Dec. 29	13,892
Average	13,239
1923	
April 3	13,845
June 30	13,858
Sept. 14	13,624
Dec. 31	13,829
Average	13,791
1924	
March 31	13,661
June 30	14,052
Oct. 10	14,903
Dec. 31	15,236
Average	14,438
1925	
April 6	15,133
June 30	15,365
Sept. 28	15,712
Dec. 31	16,197
Average	15,602
1926	
April 12	15,773
June 30	15,976
Dec. 31	15,965
Average	15,905
1927	
March 23	16,053
June 30	16,228
Oct. 10	16,350
Dec. 31	16,807
Average	16,359
1928	
Feb. 28	16,134
June 30	16,351
Oct. 3	16,072
Dec. 31	16,708
Average	16,316
1929	
March 27	16,416
June 29	16,621
Oct. 4	16,528
Dec. 31	16,737
Average	16,575
1930	
March 27	16,162
June 30	16,279
Sept. 24	15,996
Dec. 31	16,131
Average	16,142
1931	
March 25	15,949
June 30	15,562
Sept. 29	15,150
Dec. 31	14,022
Average	15,171

The interpretation of the series of adjusted demand deposits offers some difficulties. The elimination of seasonal changes is difficult because of the paucity of the data. For some purposes it is sufficient to calculate percentage changes in adjusted demand deposits from June or December to another June or December, when the same call dates are available. For other purposes the figures on the three or four call dates a year may be averaged; this will give at least an approximation of the average amount out-

TABLE II

ANNUAL PERCENTAGE CHANGES IN ADJUSTED DEMAND DEPOSITS AND LOANS AND INVESTMENTS OF MEMBER BANKS, 1922–1931*

YEAR	DEMAND DEPOSITS		LOANS AND INVESTMENTS	
	December 31 Over Previous December 31	Average for Year Over Previous Year	December 31 Over Previous December 31	Average for Year Over Previous Year
1922.....	+10.5	+4.9	+ 8.9	+1.4
1923.....	− 0.5	+4.2	+ 3.5	+8.3
1924.....	+10.2	+4.7	+ 8.5	+5.2
1925.....	+ 6.3	+8.1	+ 7.4	+7.9
1926.....	− 1.4	+1.9	+ 2.5	+4.4
1927.....	+ 5.3	+2.8	+ 8.2	+5.8
1928.....	− 0.6	−0.3	+ 4.2	+5.5
1929.....	+ 0.2	+1.6	+ 0.7	+2.6
1930.....	− 3.9	−2.7	− 3.0	−1.3
1931.....	−13.1	−6.1	−12.4	−6.2

* Source: Abstracts of Member Bank Call Date Reports.

standing throughout the year and permit comparisons with other years.

While these figures are important they do not, of course, tell the whole story. In the problem of the business cycle, the rate and type of spending are of greater importance than changes in the volume of the means of payment. The following pages, therefore, are not to be understood as a review of Federal Reserve policy. Their only object is to point out that the movements of demand deposits played no part in Federal Reserve policy while, on the other hand, important decisions were based on the movements of loans and investments. In my opinion, much of the monetary theory of the past, built up in connection with the control of the means of payment by the central banks, has been misapplied

by the banking authorities to loans and investments, because of the ambiguity of the term "credit."

In 1922 the increase in demand deposits was largely the result of an inflow of gold and purchase of securities by individual reserve banks in order to increase earnings.[39] In 1923 the sale of securities by the Federal Reserve banks, which apparently played a large part in bringing the expansion of the previous year to an end, was undertaken to test the urgency of industry's need for loans.[40] The increase in demand deposits in 1924 appears to have been a by-product of the desire to secure lower interest rates to aid agriculture and to assist in the restoration of the gold standard abroad.[41] Lower interest rates cannot be brought about while member banks are heavily in debt to the reserve banks; but the purchase of securities to get member banks out of debt permits an expansion of reserve balances and so of deposits. One member of the Board approved of the purchase of securities in 1924 since it enabled the system to acquire ammunition for a counter-offensive against any inflation that might take place later on.[42] The expansion of deposits in this year he later characterized as highly abnormal.[43] The rate advances in 1925 were apparently due to the growth of security loans.[44] The expansion of adjusted demand deposits in 1927 was again the result of a policy of easier money to aid both the domestic and international situation. It has so often been referred to as a period of excessive expansion of "credit" that it is interesting to compare the expansion with that of other years. Taking the period from December 31, 1926, to December 31, 1927, the expansion of adjusted demand deposits was 5.3 per cent—just about half that of 1922 and 1924. The average volume of adjusted demand deposits outstanding in 1927, as near as it can be calculated, was but 2.8 per cent greater than the average vol-

[39] *Senate Hearings on S.R. 71, 1931*, p. 131.

[40] *Federal Reserve Bulletin*, May, 1923, p. 543; *Stabilization Hearings, 1926*, p. 708.

[41] Governor Strong, *Stabilization Hearings, 1926*, p. 336.

[42] Dr. A. C. Miller, *op. cit., 1926*, p. 683.

[43] *Senate Hearings on S.R. 71, 1931*, p. 125.

[44] *Stabilization Hearings, 1926*, p. 641 ff.

ume in 1926. Total loans and investments showed a somewhat larger expansion. It is difficult to believe that the very moderate expansion of demand deposits was the cause of all the subsequent ills or that it represented "one of the most costly errors committed by any banking system in the last 75 years."[45]

The report of the Board for 1927 remarks upon "the rapid growth of member bank credit" and cites the increase in total loans and investments of reporting member banks of 8.4 per cent.[46] "That the growth of member bank credit during the year has not been due to a demand for loans from industry and trade is indicated by the fact that 'all other loans' . . . . actually declined during the year."[47] Again it is remarked that "the firm money policy of the system in 1928 was due to the fact that bank credit was expanding rapidly in this country, and particularly in the form of security loans, while the current requirements of trade and industry made relatively little demand for additional bank credit."[48] There are other indications that it was the expansion of total loans and investments which played a large part in the restrictive policy of 1928. Governor Harrison of the Federal Reserve Bank of New York repeatedly stated that the chief reason for the concern of the Reserve System with speculation was that it was leading to too great an expansion in the total volume of "credit" and he thought that the difficulty which the system had in curbing this expansion was due to the facility with which "credit" was advanced by others than bankers.[49] This view was shared by Mr. C. E. Mitchell, a director of the bank.[50] Governor Harrison laid it down as a general rule that if "the total volume of credit of the country is expanding at a rate and volume faster than any normal growth of business could justify, it is incumbent upon the central banking authorities to put pressure or restraint on that growth by an increase in the rediscount rate."[51] As will be seen from Table I, the result of the policy of restraint, based on the changes

[45] *Senate Hearings on S.R. 71, 1931*, p. 134. Testimony of A. C. Miller.

[46] *Annual Report of the Federal Reserve Board for 1927*, p. 5.

[47] *Ibid.*

[48] *Federal Reserve Bulletin*, April, 1929, p. 243.

[49] *Senate Hearings on S.R. 71, 1931*, p. 66 ff.

[50] *Ibid.*, p. 286.

[51] *Ibid.*, p. 68.

in loans, was that the expansion of demand deposits in 1927 was followed by a decrease in 1928. Had Governor Harrison understood by "credit" means of payment, he would have been forced by the logic of his theory, since production was increasing, to advocate a policy quite different from that which he, in fact, espoused.[52]

Another important factor in Federal Reserve policy in 1928–29 that concerns us here was the practically unanimous view that speculation was absorbing "credit" or, as it was often put, Federal Reserve "credit" was leaking into the stock market. Most of the academic controversy on this point has turned on the question whether deposits are tied up in speculative operations. This, however, was not the question which interested the Federal Reserve authorities. It was conceded that industry was financing itself through stock issues, so that deposits were presumably not remaining in New York. The important thing to the Board was the growth of speculation; "credit," i.e., loans, was being granted in huge measure to speculators. It would appear that the attempts of various writers to demonstrate that "credit" (deposits) was not being absorbed in the stock market failed to convince the Board for the reason that its members could see that "credit" (loans) was being absorbed. There were, of course, other factors in Federal Reserve policy in 1928–29 with which, however, we are not directly concerned here.

There is another important matter the discussion of which hinges largely on the concept of credit which is had in mind. This is the effectiveness of Federal Reserve policy in 1928–29. If by credit is meant bank loans and investments, the policy in 1928 was not very effective, for these were little checked; if to bank loans and investments are added loans made by "others," it was very ineffective; if, on the other hand, demand deposits are referred to, the policy was highly effective, expansion being totally arrested in a very prosperous year. Here again, however, it would appear that the effect of the Board's actions on the volume of means of payment was an incidental result of policy and not

[52] It should again be emphasized that I am here concerned merely with the ambiguity of the term "credit" and not with the wisdom of the actual policy.

an end in itself. There is now available a good deal of official comment on the 1928–29 policy; nowhere does it appear that the movement of demand deposits played any rôle in the deliberations of the officials. The system undertook to control the total volume of loans and investments, bank and other, and the composition of that total.[53] Since the system's main instruments of policy operate in fact to control the volume of means of payment in the form of demand deposits, it is not surprising that it failed in its attempt to control the total volume and composition of loans.

The same lack of interest in demand deposits was evident after the crash. The system undertook a gradual easing policy, reducing rates and buying securities up to the middle of 1930. The severity of the depression, however, in itself brought the short-term interest rates so low that the Board apparently did not see any occasion for pushing the open-market purchases farther. The result was that demand deposits declined, contrary to their movement in the milder recessions of 1924 and 1927. In the *Annual Report for 1930* it is remarked without comment that the "total liquidation of credit [loans] extended by banks and by others through the banks has amounted to $8,500,000,000 for the period [October, 1929—December, 1930]."[54] This apparently was no cause for concern, since the greater part of the liquidation was in "speculative credit." Again in late 1931 and early 1932 the reserve authorities acquiesced in one of the most catastrophic contractions of demand deposits we have ever experienced. It seems probable that had they been interested in means of payment they would have taken energetic measures to stop the decline. As it was, however, they actually encouraged the liquidation by permitting some $600,000,000 in bills to run out between October, 1931, and January, 1932, thus keeping member banks very heavily in debt.[55] Efforts by the member banks to reduce that indebtedness led to still further decline in deposits.

[53] See, e.g., *Annual Report F.R.B., 1929*, p. 10. [54] *Ibid., 1930*, p. 11.

[55] Although this was before the passage of the Glass-Steagall Act it should be remembered that bills are eligible as collateral against Federal Reserve notes, so that their purchase would not decrease "free gold."

Returning to the figures which review the whole period from the point of view of growth in member bank demand deposits, it will be observed that the period of comparatively rapid growth ended in 1925. In spite of the increase in 1927, the average volume of adjusted demand deposits was but 3.4 per cent higher in 1930 than the average volume in 1925, which represents an annual average increase in 1925–30 of 0.7 per cent. The volume of demand deposits outstanding at the very end, on December 31, 1930, was actually less than it had been five years previously.[56] The years 1925–29 are commonly thought of as a period of rapid expansion. Yet the average volume of demand deposits in the latter year was but 6.2 per cent greater than the average volume in 1925; the amount outstanding on December 31, 1929, was but 3.3 per cent higher than on December 31, 1925, an annual average expansion of only 0.8 per cent. These facts are of fundamental importance, yet have been generally ignored by writers on Federal Reserve policy. Since there was but such a small increase in the means of payment, while at the same time there was a large increase in output, the price level must have been sustained almost entirely by an increase in the circuit velocity of means of payment. It is quite conceivable that, had this been generally recognized, a somewhat different banking policy might have been followed in 1929. As it was, it was commonly believed that there was a heavy increase in both means of payment and velocity. This belief may have contributed to the fear of latent or potential inflation and may have been, therefore, a partial explanation of the slowness on the part of the reserve administration in adopting easing measures after the crash.

So far as the future is concerned, a long-term expansion of demand deposits can be brought about through a continuous reduction in member bank reserve requirements or by an increase in their reserves. The latter, in turn, is dependent upon a continuous decline in money in circulation, inflow of gold from abroad, or gradually increased holdings by the reserve banks of

[56] If non-member banks' demand deposits and money in circulation were included, a much larger decrease in the country's total means of payment would be shown.

bonds or of bills bought in the open market. There is little reason to anticipate either a sufficient long-term decline in reserve requirements or an adequate increase in reserves arising from a decrease in money in circulation or a long-term inflow of gold. The only alternative, therefore, is for the Board to pursue a deliberate policy of increasing the reserve banks' holdings of bonds and acceptances so as to increase member banks' reserves and in this way permit an expansion of demand deposits. But, and this is a most serious matter, the reserve administration is not in the slightest degree interested in credit in the sense of means of payment. Hence, it cannot be expected to be aware of the necessity of permitting expansion of demand deposits to prevent a downward secular trend of prices. Probably the reason why the banking authorities have always been reluctant to concede that there is any connection between "credit" and prices is because it is difficult to see any relation between loans and the value of money.

Perhaps, however, the necessary expansion in means of payment will result as a by-product of the administration's other policies. As has been pointed out above, the Federal Reserve administration understands credit to mean loans, and conceives that its primary concern is the satisfaction of the "legitimate commercial credit needs" of the community. If the loans which satisfy these requirements increase, the administration may perhaps feel justified in permitting an expansion of total loans and investments and, hence, indirectly and in part, an increase in means of payment. In a previous paper I attempted an analysis of the causes of the relative decline in commercial loans and found grounds for doubting that such loans will continue to increase, at least to a degree commensurate with the desirable secular expansion of demand deposits.[57] Another possibility is that, as in the past, the Board's easy money policy in years of recession will in itself result in an adequate expansion. This policy, however, has come in for a certain amount of criticism in official circles. Whether it will be used in the future is likely to depend on the success of the easy-money policy of 1932. There is a distinct possibility that in the future the almost certain increase in "speculative credit" (se-

[57] *Quarterly Journal of Economics*, August, 1931, pp. 698–709.

curity loans) will be met by an even more drastically restrictive policy than that of 1928–29.[58] At least one member of the Board, Dr. Miller, sees no need for further expansion. He has stated that

> the Federal Reserve is tied into the credit situation of the country in such a way that it will have to maintain outstanding about a billion of credit [loans] under ordinary conditions for the use of its member banks. Seldom, I think, will it drop much below that or need to increase much above that except to meet seasonal or exceptional conditions, if the banks are operated as rediscounting agencies.[59]

If this policy is adopted, the only possible major sources of expansion would be inflows of gold or of money from circulation. Broadly speaking, gold cannot be exported without an increase in "Federal Reserve credit" (earning assets) unless it is accompanied by a corresponding decline in member bank reserves or of Federal Reserve notes in circulation.[60] Our present high reserve ratio will continue indefinitely and we shall be forced to abandon the idea that we have been holding the surplus gold in trust as a basis for future expansion either at home or abroad. That this is Dr. Miller's view is unmistakably indicated by the statement in which he characterized the belief that we can bring about a redistribution of gold as "one of the most misleading illusions that any body of men charged with the responsibility of administering the fundamental credit mechanism of the country could allow to enter its mind."[61] It seems idle to devise new ways of economizing gold

[58] In view of the generally accepted official view that the policy of 1928 erred in its mildness.

[59] *Senate Hearings on S.R. 71, 1931*, p. 139.

[60] The stress laid by the reserve administration on "total Federal Reserve credit," consisting almost exclusively of bills and securities, is an interesting illustration of the emphasis misapplied through the ambiguity of the term "credit." Changes in the total of earning assets actually tell us no more than do changes in the reserve ratio of the reserve banks. The composition of earning assets is far more important than the total as an index of banking conditions. If the total is composed largely of bills discounted, we may expect contraction of member bank deposits because of the repugnance of member banks to continuous indebtedness at the reserve banks; if the figure for bills discounted is small, the probabilities are that expansion of deposits will take place. The expansion of total bills and securities may coincide with either expansion or contraction of the community's means of payment. The same is true of a contraction in the total.

[61] Dr. Miller, *Senate Hearings on S.R. 71, 1931*, p. 132.

when the banking authorities fail to see the necessity of any expansion on the basis of the surplus gold already existing.

There is here evidently an issue of fundamental importance. Should the concern of a central bank be with means of payment or with the composition of member banks' earning assets? In the United States, concern with the latter takes the form of endeavoring to foster one type of loan and discouraging all others. The issue itself, I feel, owes its existence at least partly to the ambiguity of the term "credit." At any rate it has undoubtedly been obscured by the continual use of the same word to denote quite different concepts. The ambiguity has prevented monetary writers from realizing that there is a sharp cleavage of opinion between current monetary theory and that of the banking authorities. Whatever the correct view on this difficult question, it will probably be agreed on all sides that there is no justification for allowing the present ambiguity of the meaning of the term "credit" to continue. This being so, two courses would appear to be open to monetary writers. One is to restrict the use of the term to demand deposits and to discountenance any other use. This, however, is hardly likely to be successful. The other course would be to drop the word entirely on the grounds that its ambiguity renders it unsuitable for scientific purposes. In my opinion, the intelligent discussion of monetary problems would be furthered if writers would always indicate clearly whether they are speaking of demand deposits, or of banks' earning assets, or of any other of the present various meanings of the term. The continued use of the term "credit" appears to be an obstacle both to the advancement of monetary science and to its application to current problems.

LAUCHLIN CURRIE

HARVARD UNIVERSITY

THE CUSTOMERS' LOAN MARKET AND THE OPEN-MARKET SUPPLY OF LOANABLE FUNDS

BEGINNING with the call date, October 3, 1928, the member banks of the Federal Reserve System have been required, in their reports to the Federal Reserve Board, to classify their loans according to the persons to whom or the institutions to which they are made, in addition to classifying them as to security. Prior to that date there existed no accurate means by which changes in the amount of loans to customers could be compared with changes in the amount of the open-market loans of the member banks. The new data may be used to show the extent to which member banks use the rediscounting privilege and the liquidation of their open-market commitments as means of increasing the volume of loanable funds made available to their customers. They may also be used to clarify one element which exerts some influence in the determination of open-market money rates in that they reveal the extent to which the open market is supplied with funds, or the extent to which funds are withdrawn from the open market, by the member banks of the Federal Reserve System. To reveal some of the uses to which these new data may be applied is the purpose of this study.

An exhaustive study of the factors which determine the level of money rates in the so-called "open" money market, or in the rates prevailing in any specific branch of it, would require an analysis of a multitude of factors. Among these factors which affect the supply of funds available to the money market are included changes in the monetary gold stock of the country, in the reserve banks' holdings of United States securities, in "other" reserve bank credit, in the demand for money in circulation, in the volume of treasury currency outstanding, and in the holdings of acceptances by the reserve banks. The net effect of these factors alters the open-market supply of funds and, hence, influences

open-market money rates. Another factor, however, is herein chosen for chief consideration, namely, the shifting of funds by commercial banks to and from the open market in accordance with changes in the situation prevailing in their respective local customers' markets for loanable funds. This factor affects the supply of funds available to the open market, and, as such, is a determinant of the money rates prevailing therein.

Studies made in recent years, such as those by W. Randolph Burgess[1] and Winfield W. Riefler[2] have familiarized students of money and banking with certain aspects of the relationship between open-market money rates, such as the rates prevailing on prime commercial paper, and the volume of member bank indebtedness at the Federal Reserve banks. Briefly, this relationship exists, as Burgess has pointed out, by reason of the fact that when member banks find themselves continuously in debt at the reserve banks, they take steps to pay off that indebtedness. Different means by which they may acquire the funds for doing so include the selling of securities and the calling of loans, while purchases of open-market paper are being curtailed. The consequence of this policy on the part of member banks is that open-market money rates increase as the demand for commercial paper, acceptances, etc., decreases. Conversely, a relatively low total of member-bank indebtedness at the reserve banks reveals a condition in which the member banks are, under normal conditions, in a position to invest a larger amount of funds in open-market paper. As they do so the demand for, relative to the supply of, this paper increases, permitting the borrowers on these instruments to sell them on terms more advantageous to themselves, that is, at lower rates or yields.

This explanation of the relationship between member-bank indebtedness and open-market money rates is considerably clarified when the changes, during the period under consideration, in the volume of loans to customers are compared with the changes in

[1] W. Randolph Burgess, *The Reserve Banks and the Money Market* (New York 1922).

[2] Winfield W. Riefler, *Money Rates and Money Markets in the United States* (New York, 1930).

the volume of open-market paper held by member banks. The new data, which were not available prior to October 3, 1928, reveal not only the amount of indebtedness of member banks at the reserve banks, but also the volume of member-bank loans to customers and the amount of open-market paper held by member banks. Instead of emphasizing the relationship between member-bank indebtedness at the reserve banks and open-market money rates, which is an indirect relationship, the more direct relationship between the changes in the volume of member-bank holdings of open-market paper and the open-market supply of funds, as a factor in the determination of open-market money rates, may now be revealed. The data concerning changes in the volume of loans to customers throw light upon the causes of changes in both the volume of indebtedness of member banks at the reserve banks and in the holdings of open-market paper of the member banks.

The relationship between conditions prevailing in the customers' market, on the one hand, and the open market for loanable funds, on the other hand, is a result of the attempt on the part of banks to meet, at all times, the legitimate demands for credit coming from their customers, and to keep as large a percentage of the loanable funds under their control in such employment as is consistent with sound banking practice. When customers' demand for commercial loans is high, some banks contract their open-market commitments, usually to an extent sufficient to decrease materially the supply of loanable funds in the open market, while other banks are borrowing from the Federal Reserve banks to enable them to increase their loans to customers. Conversely, when customers' loans decrease in volume, banks pay off their indebtedness at the reserve banks and increase their open-market commitments to an extent sufficient to act as an important influence in increasing the supply of funds available to open-market borrowers.

A bank may, of course, when discount rates are lower than open-market rates, be tempted to leave funds in open-market paper and rediscount commercial paper at the reserve banks, provided new commercial loans are being applied for in greater amounts than old loans are being paid. Although it is admitted that there is a very definite and powerful tradition against con-

tinuous rediscounting in order to increase the loaning power of banks, it is hardly to be expected that, among the thousands of member banks, there should be no borrowing for purposes of obtaining a profit on the spread between the rediscount rates and open-market rates. Furthermore, a bank which observes this tradition against borrowing for profit, as far as it applies to increasing customers' loans out of borrowed funds, may decide, when call rates are higher than the discount rates of the reserve banks, to meet temporary deficits in reserves by rediscounting rather than by contracting its call loans.

On the whole, however, commercial banks throughout the country make it a practice to contract their open-market commitments when customers' loans increase in volume. Conversely, when customers' loans are decreasing, they buy open-market paper in quantities sufficient to give employment to the surplus funds. Thus the supply of funds in the open market, to the extent that it is dependent upon banks, varies inversely with customers' demands for commercial loans.[3]

In so far as the operations of banks, both local and central, affect the supply of funds made available to the money market, the factors which must be given chief consideration include the amount of reserve-bank credit which has been released through the open-market operations of the reserve banks, the amount of member-bank indebtedness at the reserve banks, and the volume

[3] Attention is here called to the fact that the demand factor, as it operates in the money market, is not submitted to analysis. It is not the purpose of this article to give a complete description of the factors which determine money rates. On the contrary it attempts to throw light on one of the forces which influence the supply of funds available to the so-called "open" market for loanable funds. It is, furthermore, not assumed that the total supply of loanable funds in the open market is supplied by banks. Individuals with funds to invest, trustees having control of trust funds, insurance companies and corporations, and foreign banks buy open-market paper in tremendous quantities. Despite this fact, bill brokers, commercial paper houses, etc., have come to regard commercial banks as their best customers. When the banks are reluctant to purchase paper at the prevailing rates of discount, rates must be raised to attract other buyers. When the surplus funds of banks are high, that is, when customers' loans are low in volume, the amount of borrowing in the open market is usually also low, reflecting a decrease in business activity. Under these circumstances the dealers in open-market paper experience little difficulty in disposing of the total supply at low rates of discount.

of the open-market commitments of commercial banks.[4] The magnitude of these factors as forces determining the supply of funds available to the money market is revealed by the accompanying tables.

The data contained in these tables reveal the chief purposes to which member-bank credit is applied, or the fields from which it is withdrawn. They also reveal the uses to which additional supplies of open-market funds are applied, and the uses from which they are withdrawn. It is only from the call date, October 3, 1928, that banks were required to differentiate, in their reports, between loans to customers and open-market loans. Previous to that date, banks combined customers' and open-market loans in making their reports, and differentiated only the sum total of loans from the total of their investments. It is now possible to show when, in what amounts, and to what markets, member banks are diverting loanable funds, or from what markets and in what amounts they are withdrawing funds from investments in other than customers' paper. Furthermore, changes in the composition of their customers' and open-market loans are known.

Table I reveals the fact that, from December 31, 1928, to October 4, 1929, member banks, while increasing their loans to customers by $1,787,000,000, were withdrawing funds from the open market to the extent of $1,662,000,000. The latter figure includes a withdrawal of $882,000,000 from investment in acceptances, commercial paper, and street loans, and a withdrawal of $780,000,000 from investments in United States government and other securities.

Among the other possible sources from which banks may obtain funds to lend to customers are the following: the rediscounting of commercial paper at the reserve banks to obtain deposit credit or currency, an increase in the monetary gold stock of the United States which ordinarily gets into the possession of banks, a decrease in demand for money in circulation, the purchase of acceptances and United States securities from member banks by

[4] Since figures revealing the open-market loans for non-member banks are not available, quotations of the volume of bank loans made in the open market will, in this article, relate only to those made by member banks.

the reserve banks, an increase in treasury currency in circulation, and a decrease in member-bank reserve balances. In the period under survey, December 31, 1928, to October 4, 1929, the member banks did not, by rediscounting customers' paper, obtain funds

TABLE I

CHANGES IN THE VOLUME OF THE LOANS AND INVESTMENTS OF ALL MEMBER BANKS BETWEEN THE CALL DATES, DECEMBER 31, 1928, AND OCTOBER 4, 1929*

Loans to customers (exclusive of banks)—total	*Increased*		$1,787,000,000
Secured by stocks and bonds			
To brokers outside New York City	−	$ 36,000,000	
To other customers	+	797,000,000	
Secured by farm land	−	20,000,000	
Secured by other real estate	+	49,000,000	
Otherwise secured and unsecured	+	997,000,000	
Open-market loans—total	*Decreased*		$ 882,000,000
Purchased acceptances payable in the United States	−	$ 16,000,000	
Purchased acceptances, etc., payable abroad	−	33,000,000	
Commercial paper purchased	−	162,000,000	
Street loans†	−	671,000,000	
Investments—total	*Decreased*		$ 780,000,000
U. S. government securities	−	$290,000,000	
Other securities	−	490,000,000	
Loans to Banks—total	*Increased*		$ 780,000,000
On securities‡			
All others‡			
Loans and Investments—total	*Increased*		$ 985,000,000

* See *Federal Reserve Bulletin* (March, 1931), p. 172.
† Loans to brokers and dealers in securities at New York City.
‡ Figures not available.

from the reserve banks to lend to customers. Neither did they sell bankers' acceptances and government securities to the reserve banks, and thereby obtain a great amount of loanable funds. On the contrary, the member banks were paying off their discounts at the reserve banks and the reserve banks were reducing their holdings of acceptances and government securities.

The items in Table II, which show the changes in the credit

situation during the period under survey, take on greater significance when compared with those of Table I. It will be noted that member banks were paying off their indebtedness at the reserve banks while increasing their loans to customers. What factors in the credit situation enables member banks to accomplish this

TABLE II

RESERVE BANK CREDIT AND FACTORS IN CHANGES, WEEKLY AVERAGES OF DAILY FIGURES, FROM THE WEEK ENDING JANUARY 5, 1929, TO OCTOBER 5, 1929*

(In Millions of Dollars)

Funds were made available to the money market through:		
1. An increase in monetary gold stock	$248	
2. A decrease in money in circulation	118	
3. An increase in other reserve-bank credit	22	
4. A decrease in non-member deposits	5	
5. A decrease in member-bank reserve balances	79	
Gross gain to the money market		$472
Funds were withdrawn from the money market through:		
1. A decrease in reserve-bank holdings of United States government securities	$ 91	
2. An increase in the unexpended capital funds of the reserve banks	40	
3. A decrease in treasury currency (adjusted)	32	
4. A decrease in reserve-bank holdings of acceptances	189	$352
Net gain to the money market		$120
Funds made available to the money market were used to:		
1. Decrease member-bank borrowing at reserve bank (bills discounted)		$120

* *Annual Report of the Federal Reserve Board* (1929), p. 55.

somewhat surprising thing? If the purpose of rediscounting is to build up reserve balances in order to extend additional loans to customers, member-bank rediscounting should increase and member-bank reserve balances should likewise increase. But both decreased! The most plausible explanation of the decrease in rediscounting is found chiefly in the contraction of open-market commitments by the member banks, an increase in monetary gold stock, and a decrease in demand for money in circulation.

No attempt is made here to appraise the relative influence of the most important factors operating in the money market, which tended to change the level of money rates prevailing therein during the period now under survey, that is, from December 31, 1928, to October 4, 1929. But the tremendous withdrawal of funds from the money market by member banks and other commercial banks throughout the country was an element tending to sustain high money rates. As is well known, rates on open-market paper advanced in 1929 over the comparatively high levels prevailing during the year 1928. Rates on prime commercial paper were about 5¼ per cent at the close of 1928, and reached the high level of 6¼ per cent in October of 1929. Rates on prime bankers' acceptances increased from 4½ per cent to 5⅛ per cent during the same period. The weekly average of daily yields on United States Treasury notes and certificates of indebtedness increased from 4.56 per cent for the week ending January 5, 1929, to 5.56 per cent for the last week in March, and declined to 4.65 per cent for the week ending October 5, 1929. The rates on ninety-day time loans with security collateral reached 9¼ per cent in October, while the call renewal rate prevailed at about 12¾ per cent in March and about 8¾ per cent in October of 1929.[5]

Reference to Table I and Table II reveals the fact that withdrawals of funds from the open market by member banks alone, ignoring similar activity on the part of non-member banks, took place in an amount which was six times greater than the withdrawals of funds by the reserve banks through their open-market operations. The amount of funds withdrawn by member banks was, as has been previously observed, $1,662,000,000, while funds were withdrawn through the open-market operations of the reserve banks in the amount of $280,000,000. The withdrawal of funds by member banks from the open market might have been

[5] In this article no exhaustive attempt is made to trace the relation between the customers' market and the supply of funds available to the borrowers on specific types of short-term open-market paper. The above quotations are cited, therefore, only for the purpose of showing the general trend of rates on all classes of open-market loans. The rates on all classes of loans usually move together, however, as changes in one rate, by reason of competition for funds, are usually transmitted to the markets for other credit instruments.

caused to some extent by the sale of government securities and acceptances by the reserve banks. Ordinarily the effect of the sale of open-market paper by the reserve banks is to reduce member-bank reserve balances and to force those banks to borrow from the reserve banks or to sell open-market paper in order to correct the reserve deficiencies. In 1929, however, member banks were able to reduce their indebtedness at the reserve banks, chiefly by reason of the fact that the withdrawal of funds from the open market by the reserve banks was more than offset by the increase in the monetary gold stock and by a decrease in the demand for money in circulation. Hence it may be contended that the contraction of the open-market commitments by commercial banks had a greater effect upon the supply of funds in the open market than had the withdrawals of funds by the reserve banks through their open-market operations during the period under consideration.[6]

The data for the period from October 4, 1929, to September 24, 1930, show that there is just as close a relationship between conditions in the customers' market and those prevailing in the open

[6] There was a great increase during 1929 in brokers' loans for the account of "others," that is, for the account of lenders other than the banks of New York and their correspondents. From January 2, 1929, to October 9, 1929, these brokers' loans for the account of "others" increased from $2,166,000,000 to $3,907,000,000. The same class of loans for the account of out-of-town banks increased during the same period from $1,648,000,000 to $1,799,000,000, while for New York banks they decreased by $445,000,000. The net increase for all lenders amounted to $1,383,000,000. Thus the withdrawal of funds by member banks from the open market was not simply a decline in the holdings of one form of open-market paper, such as commercial paper, and investments, only to put the funds, so derived, into another form of open-market paper, such as loans to brokers. The net decline in loans to brokers for the account of banks, both New York and outside banks, was $290,000,000 from January 2 to October 9, 1929. It must be admitted, however, that the tremendous increase in brokers' loans for the account of others represented an increase in the volume of funds available to the money market which largely offset the withdrawal of funds from it by reason of the decline in holdings of open-market paper and investments by member banks. The assertion may be safely made, nevertheless, that the net increase in brokers' loans for all classes of lenders in 1929, did not, by any means, offset the liquidation of open-market paper by member banks and non-members combined. Even if it were admitted that other factors may be found to offset the withdrawal of funds from the open market by member and other banks, it would nevertheless be true that such withdrawal had an effect upon open-market money rates in 1929 in that it tended to maintain those rates at levels higher than would otherwise have prevailed.

market in a period of falling money rates as in a period of rising money rates. Between these two call dates, the volume of loans to customers by member banks declined by $2,239,000,000. As old loans were maturing faster than new loans were being made, it became difficult for banks to find profitable employment for their surplus funds. After they had liquidated a large part of whatever indebtedness remained against them at the reserve banks, member banks, together with other banks, invested heavily in United States government securities, in other securities, in acceptances, in commercial paper, and in loans with security collateral. The increase in the holdings by member banks of this open-market paper between the call dates, October 4, 1929, and September 24, 1930, amounted to $1,971,000,000.

Thus a situation developed which was, in many respects, the reverse of the situation in the previous period, described above. Member banks placed funds, in large amounts, in the open market, by means of their purchases of open-market paper. As the demand for open-market paper, such as acceptances, commercial paper, and street loans, increased, dealers were able to find buyers at lower and lower rates of discount. Commercial banks throughout the country were, as is ordinarily the case, the chief buyers of all types of open-market paper. Contrasting the situation in which they found themselves in this period with that of the previous period, banks bought open-market paper to give employment to the surplus funds in their control, while in the previous period they sold commercial paper to be able to meet the demands of their customers for increasingly greater amounts of credit. The Federal Reserve banks also supplied the money market with funds in large amounts, by means of their purchases of United States securities and of bankers' acceptances.

Tables III and IV reveal the relative importance of the contributions of the member banks and of the reserve banks to the supply of funds in the open market. Member banks purchased a total of $986,000,000 of short-term paper and $985,000,000 of long-term paper, a sum total of $1,971,000,000. During the same period, the reserve banks, as will be observed by reference to Table IV, supplied the open market with additional funds in the amount

of $453,000,000 by reason of the purchase of United States securities. At the same time, however, they decreased their holdings of acceptances, thereby decreasing the net effect of their operations upon money rates. The net amount of the increase in funds available to the money market by reason of the open-market oper-

TABLE III

CHANGES IN THE VOLUME OF LOANS AND INVESTMENTS OF ALL MEMBER BANKS BETWEEN THE CALL DATES, OCTOBER 4, 1929, AND SEPTEMBER 24, 1930*

Loans to customers (exclusive of banks)—total	*Decreased*		$2,239,000,000
Secured by stocks and bonds to brokers outside New York City	−	$ 165,000,000	
to other customers	−	80,000,000	
Secured by farm land	−	5,000,000	
Secured by other real estate	+	16,000,000	
Otherwise secured and unsecured	−	2,006,000,000	
Open-market loans—total	*Increased*		$ 986,000,000
Purchased acceptances payable in the United States	+	$ 112,000,000	
Purchased acceptances, etc., payable abroad	−	8,000,000	
Commercial paper purchased	+	295,000,000	
Street loans†	+	587,000,000	
Investments—total	*Increased*		$ 985,000,000
U. S. government securities	+	$ 73,000,000	
Other securities	+	912,000,000	
Loans to banks—total	*Decreased*		$ 174,000,000
Loans and investments—total	*Decreased*		$ 442,000,000

* See *Federal Reserve Bulletin* (March, 1931), p. 172.

† Loans to brokers and dealers in securities at New York City.

ations of the reserve banks was approximately $350,000,000 during the period under survey. The amount made available to the open market through the purchase by member banks of short- and long-term paper was, therefore, more than five times greater than the net contribution of the reserve banks. If the holdings of open-market credit instruments by non-member as well as member banks were considered, the figure denoting the flow of funds into

the open market from the customers' market would be tremendously larger.[7]

TABLE IV

RESERVE BANK CREDIT AND FACTORS IN CHANGES, WEEKLY AVERAGES OF DAILY FIGURES, FROM THE WEEK ENDING OCTOBER 4, 1929, TO SEPTEMBER 24, 1930*

(In Millions of Dollars)

Funds were made available to the money markets through:		
1. An increase in reserve-bank holdings of United States securities	$453	
2. A decrease in demand for money in circulation	345	
3. An increase in monetary gold stock	129	
4. A decrease in non-member bank deposits	2	
5. An increase in treasury currency (adjusted)	18	
Gross gain to the money market		$947
Funds were withdrawn from the money market through:		
1. A decrease in other reserve bank credit	$ 50	
2. An increase in the unexpended capital funds of the reserve banks	2	
3. An increase in member-bank reserve balances	35	
4. A decrease in the reserve banks' holdings of acceptances	102	
Gross withdrawals from the money market		$189
Net gain to the money market		$758
Funds gained by the money market were used to:		
1. Decrease member-bank borrowing (bills discounted)		$758

* See *Annual Report of the Federal Reserve Board*, 1929, p. 55, and *Federal Reserve Bulletin* (October, 1930), p. 618.

The member banks might have used the funds which were put in their possession by the purchase of government securities by the reserve banks to increase their reserve balances as a basis for

[7] As in the previous period submitted to analysis, so in the period from October, 1929, to October, 1930, if a complete analysis of all the factors which increase or decrease the amount of funds available to the money market were considered, cognizance would have to be taken of the liquidation of loans made by non-banking lenders to brokers and dealers in securities, which decreased the amount of funds available to the money market during the period under survey. But the member banks alone poured into the open market in less than a year's time funds to an amount close to $2,000,000,000, which doubtless was a factor tending to reduce money rates to a level lower than it would otherwise have been reduced.

a considerable extension of member-bank loans. That they did not so use reserve-bank funds is shown by the fact that member-bank loans declined during the period in question. Instead of using reserve-bank funds as a basis for further credit extension the member banks, in the absence of a demand for funds on the part of their customers, used the funds so derived for the purpose of reducing their indebtedness at the reserve banks. In addition to using reserve-bank funds for this purpose, they used the funds which came into their possession by reason of an increase in monetary gold stock and the decrease in demand for money in circulation for the same purpose. Since the member banks used funds to reduce their indebtedness at the reserve banks in an amount greater than the extent of the funds released to the money market by the reserve banks, it is clear that the increase in the open-market commitments of the member banks cannot be attributed to reserve-bank operations. The most reasonable explanation of the source of the increased funds invested by member banks in open-market paper is, then, to be found in the decline in the volume of customers' loans outstanding. Thus, in so far as banks, both local and central, supply the open market with funds, the factor of greatest importance, judging by the volume of their contribution to those funds, must be attributed to the purchase of open-market paper by commercial banks throughout the country.[8]

As contrasted with the high rates prevailing during most of the year 1929, the rates on five classes of loans for the week ending September 27, 1930, stood as follows: on 4 to 6 months' prime commercial paper, 3 per cent; on prime bankers' acceptances, $1\frac{7}{8}$ per cent; on ninety-day time loans, $2\frac{1}{4}$ per cent; on call renewal loans, 2.1 per cent; the yield on treasury bonds, 3.36 per cent. These comparatively low money rates reflect a great supply of loanable funds relative to the demand for them. The sources of this large supply have been indicated by the foregoing discussion and by the accompanying tables.

The preceding analysis of the relation between the volume of

[8] For a good explanation of the effect of reserve-bank open-market operations upon member-bank credit see Burgess, *The Reserve Banks and the Money Market*, chap. xii.

the customers' loans of member banks and the money rates prevailing in the open market for loanable funds may be used to support two contentions—that banks did as a matter of policy, in the periods under survey, adhere to what has been called the tradition against rediscounting, and that they regarded their loans to customers as being of primary concern to them, while they assigned lesser importance to their open-market loans. If a large amount of rediscounting took place while customers' loans were low in volume, and member banks were using the proceeds of their rediscounting operations to purchase open-market paper of either short or long maturities, the reasoning employed in the above analysis would be contrary to fact. So would it be if, when customers' loans were high in volume, member banks, in general, adopted the policy of increasing their rediscounting operations in proportion to the increase in the amount of their loans to customers.

That banks do not rediscount to take advantage of a difference between the cost of rediscounting and open-market money rates is more than a matter of tradition obeyed by member banks. The Federal Reserve Board has expressed its disapproval of the policy of what may be referred to as "the profit motive for rediscounting." In its report for 1926 the Board stated that "continuous borrowing by a member bank as a general practice would not be consistent with the intent of the Federal Reserve Act."[9] Again in 1928 the Federal Reserve Board denounced rediscounting for profit and stated: "In all cases where individual banks have been guilty of such abuse, the Federal Reserve authorities have taken up the matter with officers of the offending banks and have made clear to them that their reserve position should be adjusted by liquidating a part of their loan and investment account rather than through borrowing."[10] Thus, in effect, the Federal Reserve Board has said that member banks must manipulate the amount of their open-market paper to meet their needs for funds rather than depend upon continuous rediscounting. This, obviously, supports the preceding analysis of the relationship between the

[9] *Annual Report of the Federal Reserve Board*, 1926, p. 4.

[10] *Annual Report of the Federal Reserve Board*, 1928, p. 8.

customers' and the open market for loanable funds. It can also be argued that it is more profitable, in the long run, for banks to reduce their open-market commitments, especially bonds, rather than to rediscount when customers' loans are increasing, despite a wide margin between the yield on open-market paper and the rediscount rate.[11]

The second contention supported by the foregoing analysis, namely, that commercial banks regard their loans to customers as being of primary importance to them, also receives support from the fact that member banks have manipulated their holdings of open-market paper in conformity with the state of the demand for funds on the part of their customers. If this were not true, the member banks, presumably, would increase their holdings of open-market paper when the rates on such paper are higher than the rates on customers' loans and decrease their holdings when the latter rates are the higher. They, however, do the opposite, as the statistical data used in the compilations of Tables I and III clearly reveal. Most banks cannot afford to turn down good loans to their customers in order to take advantage of alluringly high open-market rates, which condition may be but temporary. If they do so, they will probably lose some profitable accounts and find themselves to have been "penny wise but pound foolish."

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[11] Winfield W. Riefler, *Money Rates and Money Markets in the United States*, p. 30: "There have been numerous instances in which individual banks have been able to operate successfully on borrowed money, but periods when large numbers of banks were engaged in the practice have usually proved unprofitable to those which did so. Bank borrowing on a large scale has usually taken place in periods of credit stringency which are ordinarily accompanied by rising rates in short-term money markets and declining prices for investment bonds. In such periods, banks which have followed traditional principles and met the strain on their resources by disposing of their investments rather than by borrowing, have profited not only by the higher rates which they have received on their short-term loans but also by the fact that they have disposed of their investments before or during the initial stages of a declining market. Those banks, on the other hand, which have held their investments intact and met the strain by borrowing, have found in the end that a large part of the earnings they received through higher rates on their loans were canceled by a depreciation in the market value of their investment holdings."

FRISCH ON THE MEASUREMENT OF UTILITY

JUST when it has become fashionable for textbook writers to belittle the rôle of utility in the analysis of price, when so many economists have convinced themselves that the notion of utility is based on an antiquated and erroneous psychology of human behavior, that it does not deal with measurable quantities and hence has no right of citizenship in a modern objective scientific treatment of economics, Professor Ragnar Frisch, of the University of Oslo, Norway, presents the claim that he has actually measured the marginal utility of money![1] Not satisfied with this theoretical achievement, which is buttressed by an imposing array of mathematical formulas and graphs, he even proposes to apply his findings to the problems of index numbers, of the supply curve of labor, and of taxation.

Are his claims valid, or are they the offspring of mathematical hallucinations? Is it indeed possible to measure the *subjective* importance which we attach to an additional dollar of income? If so, are we enabled to compare the pleasures and pains of different persons? What is the unit of measurement?

To answer these questions, it is first necessary to have a clear understanding of Frisch's procedures and findings, since his assumptions are best detected by studying his methods. I shall, therefore, begin with a brief exposition of these subjects, then indicate the applications which he makes of his findings, and return to a consideration of these questions in a concluding section.

First, we shall need to recall a few classical definitions which will be used later.

I. DEFINITIONS

Let u be the marginal utility[2] of the commodity (X)—sugar, for example—and let it depend only on the quantity x of (X)

[1] *New Methods of Measuring Marginal Utility* (Beiträge zur ökonomischen Theorie). Tübingen: Verlag von J. C. B. Mohr (Paul Siebeck), 1932. Pp. 142.

[2] It would, I think, have been more conducive to clearness had Frisch designated $u(x)$ by the term "final utility," and reserved the term "marginal utility" for $u(x)dx$. In this paper, however, I shall use Frisch's notation and terminology.

(measured in pounds) that is bought or consumed in a unit of time, so that

$$u=u(x)\,. \tag{1}$$

Let p be the price in dollars per pound of the same commodity, $\xi=xp$ the money expenditure per unit of time, and μ be the marginal utility of a "dollar's worth" of x, or of $1/p$ pounds, so that

$$\mu=\frac{u(x)}{p}\,. \tag{2.1}$$

Since u is assumed to be a function of x only, μ will be a function of ξ and p, and (2. 1) may be written as

$$\mu(\xi, p)=\frac{1}{p}\,u\left(\frac{\xi}{p}\right). \tag{2.2}$$

Let ρ be the nominal income of the consumer in question measured in dollars per unit of time, and P be the "price of living." Then

$$r=\frac{\rho}{P} \tag{3}$$

is the deflated income. Let w be the marginal utility of money measured per dollar, and let it depend only on the size of the income; and let ω be the marginal utility of money measured per unit of real purchasing power, so that

$$\omega=\frac{w}{P} \tag{4.1}$$

is the marginal utility of a real (deflated) dollar's worth of income, and corresponds to (2. 1).

Just as the marginal utility of a dollar's worth of sugar was considered as a function of ξ and p—see (2. 2)— so the marginal utility ω of a dollar's worth of real income may be considered as a function of ρ and P, and we have

$$\omega(\rho, P)=\frac{w}{P}=\frac{1}{P}\,w\left(\frac{\rho}{P}\right), \tag{4.2}$$

where ρ/P is substituted for r. This equation corresponds to (2. 2). When the price of living, P, is put equal to unity, we get a function $\omega(\rho, 1)$ of a single variable, and we have

$$\omega(\rho, 1)=w(\rho)\,, \tag{4. 3}$$

or, what amounts to the same thing,

$$\omega(r, 1)=w(r)\,. \tag{4. 4}$$

The relative change in the marginal utility of money, $w(r)$, corresponding to a small relative change in the real income r, is called the *flexibility of the marginal utility of money*, or the money flexibility, and is written as

$$\tilde{w}=\tilde{w}(r)=\frac{dw(r)}{w(r)}\Big/\frac{dr}{r}=\frac{d\log w(r)}{d\log r}\,. \tag{5. 1}$$

The average or "arc" money flexibility corresponding to a finite change in the real income from r_1 to r_2 may be written as

$$\tilde{w}(r_1, r_2)=\frac{\log w(r_1)-\log w(r_2)}{\log r_1-\log r_2}\,. \tag{5. 2}$$

The objectives of the book are to determine the properties of the functions w and $\tilde{w}$ and their numerical values for given values of r.

II. THE SURFACE OF CONSUMPTION

The keystone of Frisch's procedures is the classic formula which states that at equilibrium the individual distributes his expenditure in such a way that a dollar's worth of any commodity yields the same utility as a dollar's worth of any other commodity. In mathematical language this is expressed by the condition that the weighted marginal utilities of the various commodities (including, of course, money and services) should be equal to each other, the weights being the reciprocals of the prices. Thus if the marginal utilities of the quantities $a, b, c, \ldots$, of the commodities (A),

(B), (C), ... , are $u_1(a)$, $u_2(b)$, $u_3(c)$, ... , and the prices are p_a, p_b, p_c, ... , we must have

$$\frac{u_1(a)}{p_a}=\frac{u_2(b)}{p_b}=\frac{u_3(c)}{p_c}=\cdots\cdots. \tag{6}$$

To divide the marginal utility of each commodity by its price is to make the unit of each commodity the dollar's worth. The equation expresses the fact that the rate of increase of total utility from spending more money on any one commodity equals the rate of increase for any other. This is the condition for maximizing total utility, when the income is fixed. If any one of these commodities—say (A)—is taken as the unit of comparison in terms of which all the others are expressed, its price is by definition $p_a=1$.

In the problem at hand, the individual buys x units of (X) in exchange for money, ρ. We have, then, by (6)

$$\omega(\rho, P)=\frac{u(x)}{p}, \tag{7.1}$$

where p is the price of x. If we introduce the expression for ω from (4. 2), this becomes

$$\frac{w\left(\frac{\rho}{P}\right)}{P}=\frac{u(x)}{p}, \tag{7.2}$$

or, putting $\rho/P=r$, by (3),

$$\frac{w(r)}{P}=\frac{u(x)}{p}. \tag{7.3}$$

If we further put

$$a=\frac{P}{p}, \tag{7.4}$$

we obtain finally for the equilibrium equation

$$w(r)=au(x). \tag{7.5}$$

This equation is the keystone of Frisch's structure. It expresses the relation between the marginal utility of money and the marginal utility of the "commodity of comparison"—say sugar—and represents a *surface* in a, x, and r, which Frisch calls "the surface of consumption."

If we had a number of observations relating to the same individual in different price and income situations, we could con-

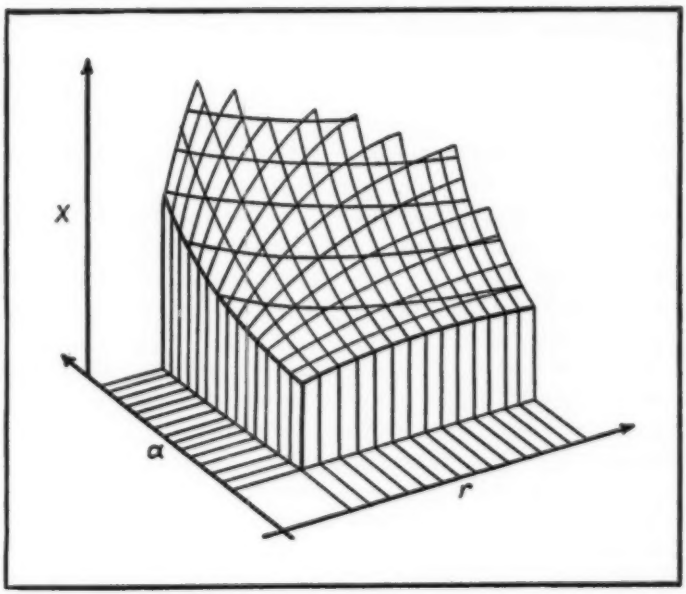

FIG. 1.—The surface of consumption

struct a surface of consumption for that individual. Since, however, different sets of observations on a single individual are generally not available, Frisch assumes that $u(x)$ and $w(r)$ are of the same shape for all persons, but that each curve has a personal factor independent of x and r; and that, furthermore, the shape of these curves is independent of time and place.

Figure 1 is a sketch of a three-dimensional model of such a surface of consumption "built on the actual numerical results ob-

tained by the translation method," which will be referred to later.[3] It is based, with the author's permission, on the photograph shown on page 17 of his book. It is a graphic representation of equation (7. 5). Of the two horizontal axes, the one extending from the foremost point (origin) to the right measures the deflated (real) income r, and the one extending from the origin backward to the left measures the inverted real price a. The vertical axis measures the consumption x of the "commodity of comparison" corresponding to any combination of a and r.

It is of interest to study the curves obtained by slicing the surface with the following three systems of planes: (1) vertical planes parallel to the (a, x) axes; (2) vertical planes parallel to the (x, r) axes; (3) horizontal planes, that is, planes parallel to the (a, r) axes.

The first set of curves shows how the quantity consumed varies as a function of the inverted price when the (real) income r is kept constant. It is a system of ordinary demand curves in which the reciprocal of p is substituted for p itself. To each (fixed) income there corresponds an inverted demand curve.

The second set of curves shows how the consumption of the commodity increases with the real income when the price is kept constant. It represents the "Engel curves." To each (fixed) price there corresponds one Engel curve.

The third set of curves are contour lines which indicate the "altitude" of the surface above the (a, r) plane. They show the relation between changes in real income and the corresponding changes in the real (inverted) price per unit of sugar which the individual is willing to pay, when the quantity of sugar that is consumed is kept constant. To each (fixed) quantity there corresponds one curve, or contour line. These contour lines Frisch has named "isoquants," because any one of them shows how r and a vary together when the quantity x is kept constant.

Apart from a scale constant along the a-axis, any such isoquant is simply the curve of the marginal utility for money, $w = w(r)$.

[3] Frisch explains that the model belongs to Professor Irving Fisher, to whom he dedicates this work and to whose encouragement and generosity he pays tribute.

The proof is simple. From (7. 5),

$$a=\frac{1}{u(x)}\,w(r)\,. \tag{8}$$

But when x is given a constant value $x=x_0$, $u(x)=u(x_0)$, and the equation becomes

$$a=Cw(r)\,, \tag{9}$$

where $C=1/u(x_0)$ is a constant. But apart from this constant factor, this is nothing else than the marginal-utility curve for money[4] $w=w(r)$.

All the isoquants are, therefore, similar to one another in the sense that any one of them can be obtained from another by multiplying the ordinate by a constant.

If the functions $w(r)$ and $u(x)$ are given, the surface of consumption is uniquely determined. Its equation will then be given by (7. 5). But, conversely, if only the shape of the surface of consumption is given, these functions cannot be determined absolutely uniquely, the arbitrary element in the determination being a constant factor, the same for $w(r)$ and $u(x)$.

The constant differs from individual to individual.

The arbitrariness of this factor may be looked upon as an expression for the fact that there is nothing in the objective behavioristic criteria involved in the present analysis which makes it possible to compare the utilities referring to one individual (or family) with the utilities for another individual (or family) [p. 20].

The shape of the surface of consumption is, however, independent of the arbitrary factor in question. It is a perfectly objective behavioristic datum.

Since $u(x)$ and $w(r)$ are affected by an arbitrary factor, different for different individuals, the only comparisons that can be made

[4] Similarly, when the income is given a constant value $r=r_0$, the marginal utility of income is fixed, or $w(r)=w(r_0)=K$, a constant, and the equation becomes

$$a'=Ku(x)\,,$$

where $a'=1/a=p/P$. But apart from the constant K, this is nothing else than the marginal-utility curve of "sugar," $u=u(x)$.

between the money-utility function ${}_1w(r)$ for one individual and the money-utility function ${}_2w(r)$ for another individual are those which are unaffected by multiplying the two functions by an arbitrary constant, independent of r. Such are the comparisons between the relative rates of change or the money flexibilities ${}_1\breve{w}$ and ${}_2w$, defined by equation (5. 1).

With these definitions and observations in mind, we may turn to a consideration of the three methods which may be used to derive the concrete, statistical measure of marginal utility.

III. THE THREE METHODS

1. *The isoquant method.*—This method, which Frisch first published in 1926,[5] consists of the construction of at least one of the isoquants from statistical data. The data actually used in this book are those employed in the 1926 study. They were furnished by the statistical department of the Union des Coopérateurs Parisiens, and relate to the thirty-one months from June, 1920, to December, 1922, inclusive. a was taken as the ratio of the price-of-living index to the price of sugar in the co-operative stores; x was taken as the sales of sugar per member; and r as the ratio between total sales of all commodities per member and the index of the price of living.

Each of the three series was first smoothed by a three-month moving average; then, by interpolation, the values of a and r were determined for which x has the same value $x_1 = 1{,}550$. A curve was drawn through the points thus obtained, giving a section of the surface of consumption, that is, the isoquant $w(r) = au(1{,}550)$. The logarithmic slope of this curve was then measured at several points, thus deriving the flexibility $\breve{w}(r)$, since a is proportional to w. w was then obtained by graphic integration. The results were checked by obtaining isoquants also for $x_1 = 1{,}750$ and $x_1 = 1{,}950$ and repeating the procedure. They are summarized on page 32. They show that for the income range covered by the data, the absolute value of the money flexibility $(-\breve{w})$ is greater

[5] "Sur un problème d'économie pure," *Norsk Matematisk Forenings Skrifter*, Ser. I, No. 16.

than unity, being 3.55 for the lowest income and 1.28 for the highest.

2. *The quantity-variation method.*—This method is applied when we do not have enough price data to enable us to construct the surface of consumption and to derive the isoquant curves. It makes use only of the Engel curves, i.e., the quantity-income curves which are obtained by fixing the (inverted) price a. When only one Engel curve is available, it is impossible to obtain the shape of the money-utility curve. But when two (or more) curves are available, the money utility may be derived by a procedure which is based upon the following considerations:

Suppose that we have two Engel curves

$$\left.\begin{aligned} r_1(x) &= r(a_1, x) \\ r_2(x) &= r(a_2, x) \end{aligned}\right\} \tag{10}$$

which express how the real income r is related to the quantity consumed, x, when the price is kept fixed at a_1 and a_2, respectively. If we substitute these functions in the fundamental equation (7. 5), we obtain, respectively:

$$\left.\begin{aligned} w[r_1(x)] &= a_1 u(x) \\ w[r_2(x)] &= a_2 u(x) \end{aligned}\right\} \tag{11}$$

Taking logarithms, subtracting the second equation from the first, and dividing by $\log r_1(x) - \log r_2(x)$, we get

$$\frac{\log w[r_1(x)] - \log w[r_2(x)]}{\log r_1(x) - \log r_2(x)} = \frac{\log a_1 - \log a_2}{\log r_1(x) - \log r_2(x)} . \tag{12}$$

But the left member of (12) is nothing else than the expression for the average or "arc" flexibility of money $w(r_1, r_2)$ over the income interval between r_1 and r_2, which was defined by (5. 2).

To each (r_1, r_2) interval which may be determined from two budget materials by giving x a certain value, formula (12) gives the average money flexibility. If the income interval (r_1, r_2) is not too large, one may take the *average* flexibility as an approximation to the *point* flexibility at the geometric mean of the two incomes.

When the flexibility function $\breve{w}(r)$ has thus been determined,

the money-utility function $w(r)$ may be derived by graphic or numerical integration.

This method, then, enables us to construct the curve of the marginal utility of money or of income when we are given two Engel curves and the ratio of the corresponding values of a. Since each Engel curve is based upon the budget of a family or group of families in a given place, the ratio of the parameters a is determined when we know the price of living P and the price p of the commodity of comparison (X) in the two places. When several Engel curves are available, it is possible to construct several curves of the marginal utility of money and to test their consistency.

Since the two (or more) Engel curves upon which this method is based relate to different persons or families situated in different places (or to the same group studied at different times), the assumption must be made that $w(r)$ and $u(x)$ are of the same shape for all persons, but each has a personal factor independent of x and r, and that, furthermore, the shape of these curves is independent of time and place. The assumption that all persons have the same utility curves would not be necessary if Engel curves for the same individuals could be constructed—a difficult, but not an impossible, task.

3. *The translation method.*—But food-quantity curves, on which the quantity-variation method is based, are not generally given in budget studies. Such studies show as a rule only the changes in the *expenditure* for food, ξ, corresponding to given changes in the nominal income ρ.

If the food price p and the price of living P are given for each budget material, the expenditure-income curves may be transformed into food-quantity curves by dividing $\xi = xp$ by p and $\rho = rP$ by P. From two (or more) food-quantity curves thus obtained we may derive the money-utility curve by the quantity-variation method.

But even if p and P are not known, the shape of the expenditure curves contains certain information regarding p and P which enables one to derive the money-utility curve by certain transformations. The assumptions underlying these transformations

are the same as those pertaining to the quantity-variation method, namely, that, except for a constant factor, $u(x)$ and $w(r)$ are of the same shape for all persons, and that the shape of these functions is independent of time and place.

Since the transformation of expenditure curves into corresponding quantity curves is obtained by dividing the ordinates ξ by p and the abscissas ρ by P, it follows that when the ordinates and the abscissas of the expenditure curves are replaced by their logarithms, the quantity curve may be obtained by translating the expenditure downward (i.e., in the negative direction of the log ξ axis) by a certain (unknown) distance, log p, and to the left (i.e., in the negative direction of the log ρ axis) by a certain (unknown) distance, log P. The co-ordinates of the translation are then $(-\log p, -\log P)$. It is required to determine these co-ordinates. More specifically, suppose that we are given two (or more) expenditure curves for two (or more) different places. By convention, we consider one of these curves as the *quantity* curve. The problem is, by how much must the other expenditure curves be shifted (translated) vertically and horizontally in order to transform them into quantity curves?

Now, the new positions may be determined from the very properties of the Engel curves. The gist of the translation method is a series of rules (which cannot conveniently be summarized without reproducing Frisch's diagrams) for determining these positions graphically. Once the positions have been determined, the curves may be looked upon as quantity-income curves, and the money flexibility can then be determined by the quantity-variation method. See equation (12).

By way of illustration, Frisch applied the translation method to the cost-of-living data gathered by the United States Bureau of Labor Statistics in 1918–19, which covered ninety-two cities or localities in forty-two states, and which are summarized in its *Bulletin 357*. This *Bulletin* does not give income directly, but as it gives the total family expenditure for various items of consumption, together with the family surplus or deficit, as well as the number of "equivalent adult males" per family, the income can be computed and reduced to a per capita basis.

Frisch selected thirteen of the ninety-two cities—he does not give the basis of selection—and for each of these he plotted the food expenditure per capita against the income per capita, using a logarithmic scale for both variables. To facilitate comparison of the curves, he used transparent sheets. He then smoothed each of the thirteen curves graphically, and from these he selected nine (without specifying the reason for the selection) for further analysis. He then took San Francisco as a base place and sub-

TABLE I*

AVERAGE VALUES OF THE MARGINAL UTILITY OF MONEY AND AVERAGE ABSOLUTE VALUES OF THE MONEY-UTILITY CURVE

Real (Deflated) Income r	Marginal Utility of Money w	Absolute Value of the Flexibility of the Money-Utility Curve $=-\breve{w}$
2.40	10.00	.617
2.62	9.50	.559
2.90	9.03	.510
3.17	8.63	.467
3.48	8.30	.428
3.80	7.98	.396
4.16	7.72	.362
4.55	7.48	.333
5.00	7.26	.312
5.40	7.07	.294
5.91	6.89	.278
6.50	6.72	.261

* Derived by Frisch from the U.S. Bureau of Labor Statistics cost-of-living data for 1918–19.

jected the curves for the other cities to a free-hand translation with respect to it, in accordance with the three principles of this method. In this manner he obtained seventeen values for $(-\breve{w})$ and plotted them as a function of $\log r$. He then drew a smooth curve through these points. This curve gives the smoothed average flexibility $(-\breve{w})$ as a function of income. From this curve he determined the curve of marginal utility w as a function of r by numerical integration. Table I, taken from page 64 of the book, is a summary of the main results which he obtained.

Interest attaches to the fact that the absolute value of the money flexibility is less than unity over the entire range covered

by the data. For the French data, however, $(-\check{w})$ increases from 1.28 for the highest income included to 3.55 for the lowest.

If the American data had also covered families with incomes below $900 per annum, it is probable that we should have observed money flexibilities greater than unity. Thus at some critical point on the income curve the money flexibility is probably equal to unity.

IV. APPLICATIONS

Assuming that the marginal utility of money can be measured by one of the foregoing methods, what use can be made of it? Frisch applies it to three fields—the theory of index numbers, the theory of labor supply, and the theory of taxation.

The idea of utilizing the notion of utility in order to define an index number has been considered by various writers. Professor Frisch, however, approaches it from a novel point of view. The problem may be stated as follows: Given a nominal income ρ_1 for one place or time, it is required to determine the nominal income ρ_2 for another place or time, which will make the individual just as well off as if he enjoyed income ρ_1 in the first place or time. The orthodox formulation of the problem implicitly assumes that the income ρ_2 in question can be found by multiplying ρ_1 by a certain factor P_{21} which is independent of ρ_1:

$$\rho_2 = P_{21} \cdot \rho_1 . \tag{13}$$

According to this conception P_{21} is the "price of living" in place 2 as compared with place 1. Frisch formulates the problem of a price of living by saying that ρ_2 is some function R_{21} of ρ_1:

$$\rho_2 = R_{21}(\rho_1) . \tag{14}$$

Now R_{21} is also a price of living. But it cannot be expressed as a number unless we attach the number to a definite point on the curve which relates the two incomes to one another. In this connection Frisch makes the original suggestion that we should consider those incomes as corresponding to one another at two places or dates at which the absolute value of the money flexibility is the

same. In support of this suggestion he points out that the money flexibility is the only known parameter which is a pure number, defined only by the prices and the quantities in place 1 or by the prices and the quantities in place 2, so that no direct price or quantity comparison between the two places is necessary; and that it offers a possibility of creating a plausible connection between ρ_1 and ρ_2. For example, if $(-\check{w})$ has the value of, say, 2 for an American income of $200 and the same value for a German income of M. 500, then Frisch's suggestion is that these two incomes should be considered as equivalent to one another. That is, at these incomes a German and an American are equally well off, and at this point on the income curve, $1.00 is equivalent to M. 2.5.

The application of the notion of money flexibility to the supply curve of labor clears up some interesting theoretical points, the most important relating to the shape of the curve. Frisch shows that as the price of labor increases the supply may increase up to a certain point and then decrease. That the supply curve of labor (or of any commodity) may at first ascend and then curl back to the price axis is, however, as old as Walras, if not older. I am surprised to find no reference to Walras' *Éléments*, especially pages 57–58, and to the accompanying graphs.

The third field—taxation—to which the notion of money utility is applied is probably the most important of all. The main object of Frisch's treatment is to point out the relations existing between the more important theories of taxation and to determine the conditions which lead to a progressive income tax.

The finding that the absolute value of the money flexibility decreases from very high magnitudes for small incomes to magnitudes less than 1 for large incomes—assuming that it is verified by other investigations—does not necessarily imply that the tax should be progressive. It is also necessary to have a definition of "justice" in taxation—a notion which is generally based on social and political considerations. For one definition of justice, the shape of the flexibility curve may entail a progressive tax, for another definition a proportional or even regressive tax.

The *equal-sacrifice principle*, which asserts that the tax

should be such that "everybody will give up the same amount of utility" (the area-difference principle), leads to a progressive tax only when the absolute money flexibility is greater than unity. If it is true, as Frisch's evidence indicates, that the absolute flexibility is greater than unity only for small incomes, the conclusion is that the higher incomes should *not* be taxed at a progressive rate under the "equal sacrifice" principle.

The *equal-proportional-sacrifice principle* (the area-ratio principle) leads to a progressive tax when the absolute money flexibility plus the ratio of the rectangle utility to the total utility is greater than 1. (By the "rectangle utility" is meant the product of the marginal utility by the income.)

The *marginal-difference principle*, which asserts that the tax should be such that the *absolute* increase in the marginal utility of money is the same for all the taxpayers, leads to a progressive tax when the product of the marginal utility of money (w) by the absolute value of the flexibility ($-\ddot{w}$) is decreasing. This condition leads to a progressive tax throughout the income range for which observations of the marginal utility of money are at present available.

The *marginal-ratio principle*, according to which the tax should be such that the *proportional* increase in the marginal utility of money is the same for all taxpayers, leads to a progressive tax when the absolute value of the money flexibility is decreasing. As the statistical results indicate that the absolute money flexibility has this property within the range of the observations, the marginal-ratio principle generally leads to a progressive tax.

Finally, the *minimum-sacrifice principle* (the complete leveling principle) obviously leads to a progressive tax.

Frisch recognizes, of course, that his theoretical discussion does not take into account the effect of the tax on production and the effect of the different uses to which the proceeds of the tax may be put.

V. FUNDAMENTAL QUESTIONS

The ground has now been prepared for a consideration of the questions raised at the beginning of this paper.

1. The first question is, Do Frisch's procedures make it possi-

ble to measure the *subjective* importance which we attach to an additional dollar of income? To those to whom the term "subjective" conveys the impression of something purely psychical, something entirely divorced from external realities, marginal utility is unmeasurable by definition, and Frisch's claims must be dismissed as hedonistic circle-squaring. Most economists would, however, feel that utility is measurable if it were established that a change in the income of an individual is always associated with a change in his pulse, in his rate of metabolism, or in any other measurable physiological activity. Now it may be granted that the feelings of the human heart are not directly measurable by any known procedure, and I doubt whether such a procedure will ever be invented. But it is these feelings which continually prompt us to buy and sell, borrow and lend, labor and rest, produce and consume; and *it is from the quantitative effects of these feelings that we can estimate their comparative intensity*. As Jevons, who first advanced this argument, put it:

> We can no more know nor measure gravity in its own nature than we can measure a feeling; but, just as we measure gravity by its effects in the motion of a pendulum, so we may estimate the equality or inequality of feelings by the decisions of the human mind. The will is our pendulum, and its oscillations are minutely registered in the price lists of the markets.[6]

If we accept this point of view, then we must conclude that the problem of measuring the flexibility of the marginal utility of money has been solved.

This is an important contribution. In 1871 Jevons wrote:

> "But where," the reader will perhaps ask, "are your numerical data for estimating pleasures and pains in Political Economy?" I answer, that my numerical data are more abundant and precise than those possessed by any other science, but that we have not yet known how to employ them. The very abundance of our data is perplexing. There is not a clerk nor bookkeeper in the country who is not engaged in recording numerical facts for the economist. The private-account books, the great ledgers of merchants and bankers and public offices, the share lists, price lists, bank returns, monetary intelligence, Custom-house and other Government returns, are all full of the kind of numerical data required to render Economics an exact mathematical science. Thousands of folio volumes of statistical, parliamentary, or

[6] *The Theory of Political Economy* (4th ed., 1924), pp. 11–12.

other publications await the labour of the investigator. It is partly the very extent and complexity of the information which deters us from its proper use. *But it is chiefly a want of method and completeness in this vast mass of information which prevents our employing it in the scientific investigation of the natural laws of Economics.*[1]

A method is now at hand which, while it does not directly measure pleasure and pain—Jevons' synonyms for "utility" and "disutility"—at least determines their comparative intensity from the quantitative effects of these feelings.

The method is based on the following economic assumptions: (*a*) that the utility which an individual derives from a commodity is a function only of the quantity of that commodity; (*b*) that this function remains unchanged during the period covered by the investigation, in spite of changes in the income of the individual and in the prices of the goods which he buys; (*c*) that the individual so spends his income as to obtain the same utility from the last dollar's worth of each commodity purchased (see equation [6]). The last condition is equivalent to the assumption that the economic behavior of the individual is rational, taking for granted his habits and the social milieu in which he finds himself.

The statistical data that are needed for determining the flexibility of the marginal utility of money are a reasonable number of observations of the quantities of a commodity that are purchased by an individual with given income at stated prices. Since at any one time and place we know only one observation of each of these variables (quantity, income, and price), Frisch is compelled to postulate an average person, and to use data relating to a group.

Although the lack of the necessary data compels Frisch in his numerical illustrations to make this assumption and even less plausible assumptions, there can be no doubt but that, had the relevant data for an individual been available, Frisch's procedure would give his money flexibility, i.e., the relative change in his marginal utility of money corresponding to a relative change in his income when the changes are infinitesimal. This flexibility, which is itself a function of the income, is, of course, an abstract number like the coefficient of the elasticity of demand.

[1] *Ibid.*, pp. 10–11. (Italics mine.)

2. The second question to be considered is whether the results enable us to compare the pleasures and pains of different persons. To answer this question we must recall that the fundamental assumption which Frisch is compelled to make because of the absence of relevant data for individuals is that the marginal-utility functions $u(x)$ and $w(r)$ are of the same shape for all persons of the group, but that each curve has a personal factor independent of x and r. It follows, therefore, as Frisch himself points out, that the only comparisons that can be made between the money-utility curves for different persons are those which are unaffected by this constant. Such are the comparisons between the relative rates of change of the different marginal-utility curves. It is clear, then, that the money *flexibilities* of two different persons are comparable *by definition*, while the corresponding curves of marginal utility are not.

3. The third question to be answered relates to the unit of measurement of utility. It may be stated as follows: Why does Frisch identify the isoquants with curves of the marginal utility of money? The former simply gives the relation between changes in the real (inverted) price which an individual is willing to pay for a commodity, and the changes in his real income, when the quantity of the commodity that he consumes is fixed. Why call it a curve of marginal utility of money? What is the *dimension* of the measure of marginal utility? This question is not discussed in the book. I therefore raised it in a letter which I had occasion to write to him. His reply may be summarized as follows:

We cannot conveniently eradicate the notion of utility from enonomics. The very fact that these words exist and are frequently used indicates that we are dealing with something which is of basic importance to the economist. The conception must, however, be made more precise if we are to use it in constructive theoretical work.

Now Frisch has shown that if such a thing as the money-utility curve exists, and if it has "those elementary properties without which the very notion of a money-utility curve could not very well be conceived," then this curve must, in a static market, be just the isoquant apart from the unit of measurement of utility.

Conversely, the shape of the isoquant determines the shape of the money-utility curve apart from the unit of measurement for utility. To quote from his letter:

> Thus we actually know *the law of variation* of utility within a very important field, although we do not know the philosophical interpretation of the "dimension" of utility. But for actual work in economics today, both in theory and in application, it is the law of variation that is important. The other question: that of giving a philosophical interpretation of the dimension of utility, is, at the present stage of the game, quite subordinate. I would even be inclined to characterise this latter question as only a philological one in distinction to the truly economic problem of *how the utility varies*. It is on this law of variation that practically all the classical and much discussed utility problems depend, not on the philosophical interpretation of what shall be understood by a unit of utility. This is, for instance, the case with the problem of tax graduation, the problem of the demand curve for labour and the problem of constructed geographical price indices. What we need to know in all these problems are those features of the money utility curve that are invariant for a change in the unit of measurement. In other words, the law of variation which we need to know is exactly that law of variation which, as I have proved, is given by the isoquant.
>
> In this situation where we actually have a means of determining the law of variation of utility and where this law of variation is what theory and application need, it seems to me to be pedantic to formulate the utility problem as if the important aspect of the problem was to discuss the "dimension" of utility. Indeed, it seems to me to be quite justified simply to say that the isoquant *is* the money utility curve.

Frisch then proceeds to point out that the situation in economics is analogous to that which obtained in other fields. For example, at the time of Newton, the important thing to find out was the law of gravitation, which states that the attractive force between two bodies varies directly as the product of their masses, and inversely as the square of the distance between them. In comparison with this, the discussion of the "dimension" of the gravitational constant that occurs in the equation was a matter of decidedly secondary importance.

I cannot accept Frisch's view that the question of the *dimension* of utility is a "philological" one, for the problem of the dimensions of economic quantities is, as Jevons pointed out, at the bottom of all clear thought about economic science. But I agree with him that at present it is more important to determine how utility

varies—whatever dimension it may have. It is to be regretted, however, that with the exception of Wicksteed[8] and Evans[9] no one has apparently made a study of this subject to which Jevons attached so much importance.

4. Turning now to matters of technique, I find that of the three methods used by Frisch, the isoquant and the quantity-variation methods are quite reliable. But the method of translation involves so much mechanical shifting of curves, so much free-hand smoothing, that it is much to be doubted whether the regularities of the flexibilities obtained are of much significance. But even the best of these methods—the isoquant method—is not exploited as much as it might have been. In addition to the surface of consumption for sugar, there should have been constructed a surface of consumption for at least one other commodity. This would have permitted a comparison of the marginal-utility curve for money derived from the two surfaces. It is true, of course, that according to the theory of utility the results obtained from the two surfaces must be identical, but the identity which is postulated in theory relates only to an equilibrium situation. What justification is there for supposing that the members of the French co-operative stores were in equilibrium with respect to *each and every one of their purchases* during the period covered by Frisch's study? Certainly, such independent curves as might have been derived from the use of the data relating to such different commodities as bread, tea, meat, etc., would have provided an excellent check on the results obtained from the sugar data, and on the degree to which the consumers were actually in equilibrium.

5. Frisch's three procedures are all based on the simplifying assumption that the marginal utility of money is a function only of the money income and of the price of living. This, as Frisch himself points out, is not so general an assumption as that of Professor

[8] P. H. Wicksteed, "On Certain Passages in Jevons' 'Theory of Political Economy,'" *Quarterly Journal of Economics*, III (1888–89), 293–314; and his article on "Dimensions of Economic Quantities" in *Palgrave's Dictionary of Political Economy*.

[9] G. C. Evans, *Mathematical Introduction to Economics* (New York, 1930), chaps. ii and xi. See also a review of this book by H. Schultz in the *Journal of the American Statistical Association*, XXVI, No. 176 (December, 1931), 484–91.

Irving Fisher,[10] which is that the marginal utility of money is a function of the prices of the various commodities as well as of the incomes. Frisch's assumption makes it possible to use observations relating to *different price situations* in order to determine points on the *same utility curve*. To obtain Fisher's curve, however, we must have a series of data relating to the same price situation. It is greatly to be desired that Professor Fisher's method should be applied as soon as the relevant statistical data become available, for then it will be possible to verify whether the special assumptions underlying the isoquant method are valid.

6. The possibility of measuring the marginal utility of money raises the hope that it will have many applications of theoretical and practical significance. Frisch's mode of connecting the marginal utility of money with the principles of index numbers, of labor supply, and, above all, of taxation, has been briefly sketched in the foregoing pages. As Frisch himself points out, the application of the concrete statistical curve of the marginal utility of money to the problem of the income tax tells us not only whether a certain principle of taxation leads to a progressive tax or not, but provides a *means of actually constructing the tax schedule*. This fact may prove to be the most important factor in the development of researches into the shape of the marginal-utility curve for money for the different classes.

7. Those who are interested in developing the border lines between economics and the other sciences will do well to investigate the relations between the methods of deriving utility and demand functions used by economists and the methods of measuring the "psychological continuum" as used by modern psychophysicists. This is not a suggestion that economics should borrow its postulates from psychology, but only that the workers in the two fields should familiarize themselves with each other's problems and procedures. While I believe that, on the whole, psychophysicists stand to gain more from such an intermarriage of ideas, I am also

[10] "A Statistical Method for Measuring 'Marginal Utility' and Testing the Justice of a Progressive Income Tax," in *Economic Essays Contributed in Honor of John Bates Clark*, ed. Jacob H. Hollander (New York: Macmillan Co., 1927), pp. 157–93.

convinced that those statistical economists who are interested in the measurement of utility and demand cannot afford to remain in ignorance of such methods as are used to determine just-noticeable differences,[11] and the discriminal error as a unit of measurement on the psychological continuum;[12] for is not utility also a psychological continuum?

8. As a final summary, we may remark that the book has the earmarks of genius, that it enriches economic science and psychophysics by showing how to deal with relations which have hitherto proved intractable, and that it enables us to wring fresh knowledge out of the accumulated masses of family budget and market data.

NOTE.—In a review of the same book by Professor A. L. Bowley (*Economic Journal*, XLII [June, 1932], 252–56) the reader will find not only some penetrating comments, but also a list of *corrigenda*.

HENRY SCHULTZ

UNIVERSITY OF CHICAGO

[11] See W. Brown and G. H. Thomson, *The Essentials of Mental Measurement* (Cambridge, 1921), Part I.

[12] See L. L. Thurstone, "A Mental Unit of Measurement," *Psychological Review*, XXXIV, No. 6 (November, 1927), 415–23, and "Psychophysical Analysis," *American Journal of Psychology*, XXXVIII (July, 1927), 368–89.

AN UNPUBLISHED LETTER OF RICARDO TO MALTHUS

THE letter here printed for the first time has just been acquired by the University of Chicago Libraries by purchase from an English bookseller. Dated September 10, 1821, it comes between letters of July 21, 1821, and September 28, 1821, in the collection of letters from Ricardo to Malthus edited and published by Dr. Bonar.[1] The letter adds some bits of evidence in support of Professor Hollander's statement, on the basis of the additional Ricardo material which he has just published, that "to a far greater degree than had been supposed Ricardo appears herein as a reader of economic texts."[2]

Ricardo's comment on Ravenstone's book is significant. Ravenstone was the first of the so-called "Ricardian Socialists," and the only one to publish his views before Ricardo's death. He had a marked influence on Thomas Hodgskin and also probably on William Thompson. He was a pronouncedly radical critic of the existing economic organization of England; but the cure he offered was a mild one: political democracy, laissez faire, and abolition of all taxes except taxes on property.[3] Since Ravenstone's explanation of the causes of the distress of the working-classes consisted essentially of the claim that the landlord, the capitalist, and the tax-gatherer deprived labor of the product of its effort, and used their booty to maintain the privileged classes in idleness or in unproductive activities, Ricardo's partially laudatory comments should be especially surprising to the many economists who have regarded him as primarily an apologist for the moneyed classes.

Ricardo's reference to "one of Owens' preventives" is also interesting. Whether or not Robert Owen was in any way a promoter of the practice of birth-control has been a matter of controversy.[4] This refer-

[1] *Letters of David Ricardo to Thomas Robert Malthus 1810–1823*, James Bonar, ed. (Oxford, 1887).

[2] *Minor Papers on the Currency Question 1809–1823 by David Ricardo*, Jacob H. Hollander, ed. (Baltimore, 1932), Introduction, p. ix.

[3] Summaries of Ravenstone's views are given by E. R. A. Seligman, in his article "On Some Neglected British Economists," *Economic Journal*, Vol. XIII (1903), reprinted in his *Essays in Economics* (New York, 1925), pp. 98–100, and by Élie Halévy, in *Thomas Hodgskin (1787–1869)* (Paris, 1903), pp. 86–87 n.

[4] Dr. Bonar, in the first edition of his study of Malthus, went so far as to say that "it is beyond all doubt that the Neo-Malthusians are the children not of Robert

ence does not solve the problem, but it does seem to show that Ricardo thought Owen had been associated with the promotion of birth-control prior to the date of publication, October 1, 1823, of the first public charge to that effect. There is no reference to Owen in Place's book as published; but it is conceivable that the sole basis for Ricardo's reference to Owen may have been some specific mention of him by Place in the manuscript of his book, which was deleted prior to its publication.

This letter, unfortunately, also fails to answer satisfactorily the question raised by Field: "We may but conjecture whether to count Ricardo among the conservatives like Malthus and McCulloch, or to class him with his immediate disciples as an adherent of the principle of artificial restraint."[5]

JACOB VINER

UNIVERSITY OF CHICAGO

Gatcomb Park
10 Sep 1821

MY DEAR MALTHUS

I do not know whether you received the last letter which I addressed to you at St Catherines, as it must have arrived there just about the time you were leaving that place for Haileybury. Perhaps you may be this way again at Christmas, if so we shall hope to see you.

Mr Place's reply to Godwin[6] is finished—he wishes much that Murray should publish it,[7] & for the purpose of conferring with him on the subject,

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Malthus, but of Robert Owen" (*Malthus and His Work* [London, 1885], p. 24), although in the later edition he substituted "it is probable" for "it is beyond all doubt" (*ibid.* [1924 ed.], p. 24). James A. Field was more guarded, but a careful survey of the evidence left him still prepared to believe that birth-control may have been promoted at New Lanark, and even that Robert Owen may have been the author of the "Diabolical Handbills" (James A. Field, *Essays on Population* [Helen Fisher Hohman, ed.; Chicago, 1931], pp. 98–108). Professor Norman Himes is convinced, however, that Place, and not Owen, was the author of the handbills, and that Owen was in no way associated with the birth-control movement (Norman E. Himes, "The Place of John Stuart Mill and of Robert Owen in the History of English Neo-Malthusianism," *Quarterly Journal of Economics*, XLII [1928], 634–39).

[5] *Essays on Population*, p. 127.

[6] Francis Place, *Illustrations and Proofs of the Principle of Population: Including an Examination of the Proposed Remedies of Mr. Malthus, and a Reply to the Objections of Mr. Godwin and Others* (London, 1822).

Professor Norman E. Himes has recently reprinted this book, with an introduction and critical and textual notes (London, 1930). References to Place's book in these notes will be to the reprint, which will be cited as *Place on Population*, Himes edition.

[7] Cf. Ricardo to Malthus, October 11, 1821 (in *Letters of Ricardo to Malthus*, James Bonar, ed., p. 207): "I hear nothing about Murray and Place." Place's book was published by Longman, and not by Murray, early in 1822.

asked me for an introduction to Murray. To enable me to speak my sentiments of the merits of his book he sent me the MS copy, which I have read, & returned to him. Nothing that I have ever seen from Place's pen ever appeared to me to have half the merit of this Reply—he meets Godwin on all his grounds, and every where triumphantly answers him. On the question of the American population he is quite successful, & shews by official documents what the amount was of emigrants from these kingdoms to America, and how utterly inadequate immigration has been to the actual increase of population in that country. He has stated the case of the poor with great force, & I think in many respects with great justice. He tells you what their complaints are against the rich, the chief of which are a want of sympathy with their distress, & oppressive laws—such as combination laws, corn laws, restraints on commerce & many others. In some of his charges he is I think most unjust to the rich, and the only injustice which he does to you is in charging you with giving countenance to the calumnious accusations which are so generally brought against the poor.[8] From the representations I have made to him I trust that he will alter this part of his work.

He does not wish to take any measures at present to get rid even gradually of the poor laws; he thinks that the situation of the poor would be made worse by their abolition. he would rely entirely on appeals judiciously made to the understandings of the people—on their being instructed that their happiness or misery depends mainly on their number compared with the demand for their labour, and therefore on themselves. I think his arguments are popular, & will be easily understood. If you had answered Godwin you would have dwelt very much, & very properly, on the arguments which you have before advanced in Chap^rs 11 & 12—Book 2^d of your own work—[9] Place has said little on the source of error in our conclusions from Registers. Place speaks of one of Owens preventives to an excessive population—he does not dwell upon it,[10] but I have a little doubt whether it is right even to mention it.

Have you seen a work on Population & Polit. Econ. by M^r Raven-

[8] Place's book as published still contained some passages criticizing Malthus along the lines here indicated. Cf. *Place on Population*, Himes ed., p. 8: "Mr. Malthus . . . . [was] too often disposed to favour the prejudices of the rich." Cf. also *ibid.*, pp. 154–56.

[9] The reference is presumably to the fifth edition of Malthus' *Essay on the Principle of Population*, published in 1817. The headings in this edition of the chapters referred to are: "On the Fruitfulness of Marriages" and "Effects of Epidemics on Registers of Births, Deaths and Marriages."

[10] Cf. *Place on Population*, Himes ed., pp. 165, 173, 179, for references to birth-control. In a letter written by Place in 1830, which is printed by Himes in an Appendix to his edition of Place's book (App. B, p. 311), there is the following reference to these passages: "I allude to this [birth control devices] pretty plainly in my little book on the Principle of Population. I did this with the concurrence of friends who were themselves afraid to encounter the certain obloquy of such allusions. It brought much on me, but this individually was of no importance."

stone [?][11] I have read it. I think it is full of errors & shews that the author has a very limited knowledge of the subject, yet I felt great interest in perusing it. The cause of the distress of the working class is well stated, but he appears not to be aware of the difficulty of providing a remedy.

I have received a long letter from Say[12] in vindication of his doctrine of value, utility & c.—I send it to you by this day's post for your perusal—when you have read it return it to me in two parcels—it is too heavy for one frank.

Tell me your opinion of it. It appears to me to be a poor piece of reasoning.

Sydney Smith has been at Gatcomb with his family—they staid 2 nights here, on their way from Taunton to their own house.[13] He was as agreeable as usual & we were all much pleased with his society. Pray make our kind regards to M[rs] Malthus & believe me

Ever truly yours
DAVID RICARDO

Minchinhampton September Ten 1821
The Rev[d] T. R. Malthus
East India College
Hertford.

(Franked.)

[11] *Piercy Ravenstone, a Few Doubts as to the Correctness of Some Opinions Generally Entertained on the Subjects of Population and Political Economy* (London, 1821).

[12] This undoubtedly refers to the letter of J. B. Say to Ricardo dated Paris, July 19, 1821, printed in *Œuvres diverses de J.-B. Say*, Charles Comte, ed. (Paris, 1848), pp. 418–22, and reprinted, from the original manuscript, in *Minor Papers on the Currency Question 1809–1823 by David Ricardo*, Jacob H. Hollander, ed. (Baltimore, 1932), pp. 185–90.

[13] Cf. *Letters of David Ricardo to Hutches Trower and Others*, James Bonar and Jacob H. Hollander, eds. (Oxford, 1899), p. 165.

BOOK REVIEWS

Labor and Other Economic Essays. By HENRY R. SEAGER. Edited by CHARLES A. GULICK, JR. New York: Harper & Bros., 1931. Pp. xxi+432. $3.50.

This memorial volume is introduced by a biographical sketch of Professor Seager from the pen of his colleague Wesley C. Mitchell and closed with a bibliography, intended to be exhaustive, of his writings. It includes, in chronological order, thirty-three papers, some of which are very brief, written at various dates from the time of his European study in 1892–93 until the winter of 1927. This period of thirty-five years covers most of his academic and public career, his untimely death occurring in the summer of 1930. The great majority of these papers deals with problems touching labor: with questions of union policy such as strikes and the closed shop; with labor legislation as interpreted by the courts and hampered by written constitutions; with the questions of injunctions and minimum wages; and with the group of problems comprehended in social insurance. There are no papers representatative of his well-known work on trusts, since these papers are reserved for "a later publication for which Seager completed plans just prior to his death."

Other interests than labor and trusts are represented by early papers on economics at Berlin and Vienna and on the relation of the teaching of economic history to the teaching of political economy, by a critical discussion of Fisher's "Impatience Theory of Interest," and by the concluding article on the "War Debts." The papers dealing with the teaching of economics demonstrate that Seager's powers of lucid exposition and discriminating judgment were of early development. He is a keen critic of the "famous German and Austrian economists with whom he studied." The basis of his judgment sums up in his conclusion regarding Professor Böhm-Bawerk's seminar. "The value of the course," said he, "consists in the encouragement it gives to original thinking and in the sharpening effect it has on the critical faculties of all those who take part in it. It has been to me the most valuable economic course I have had in Germany." The final paper on the "War Debts," after a characteristically keen and temperate discussion

of the question of insistence upon repayment of the war loans, concludes the volume appropriately on a high note. Seager advocated revising the agreements to the end that we might "regain the good will of our late associates in the war and join heartily with them and our late enemies in planning measures which will outlaw war and safeguard the future peace of the world."

Seager's services in the exposition and solution of problems of labor and social insurance are too well known to need elaboration here. But the appearance of this worthy memorial volume offers fitting opportunity to recall his sturdy philosophy and to re-emphasize his helpful viewpoints. His central creed may be epitomized in one of his own sentences. Said he: "Over long periods no forward-looking American will agree to permit the needs of industry to triumph over the needs of democracy." His central line of constructive attack was expressed as early as 1927 when he wrote: "By educating all the children of each generation and developing in them the qualities that have enabled the few to contribute largely to the production of wealth in the nineteenth century the production of wealth in the future is not only to be enormously increased but its distribution is to be made more and more equal, more and more democratic."

His clear-sighted judgment in vexed questions is evidenced by his demand that the law-abiding be marked off from the lawless trade-union and that both trade-unions and trusts "should be given free play up to the point where they begin to conflict with the general interest. Beyond that point both should be regulated and controlled that their evil tendencies which have a common origin and many points of resemblance may be effectively held in check."

Seager was an optimist as is demonstrated by his positively stated belief "that the problem of unemployment can be solved." He was a staunch supporter of established institutions so long as they served the democracy well. But when the Ives decision made it a "clear and manifest duty" to amend the state constitution he was no whit disturbed. He defended the rights of labor but he came to believe and did not hesitate to declare: "we have now reached a stage in public service industries where we can no longer tolerate the use of the strike and where we are beginning to establish standards through legislation and through adjustment boards which render resort to it unnecessary." Hence his advocacy of a Federal Industrial Relations Commission whose "task would be not that of further embittering the relations of employer and employees by emphasizing the evils in the present situa-

tion, but that of promoting collective bargaining, adjustments through boards, and every other desirable constructive plan for substituting cooperation for conflict and bringing us nearer the new day of which we all dream, when the aims of industrial justice and the aims of industrial efficiency will at last be reconciled in a true industrial democracy."

In the editor's Introduction he expresses his purpose to reflect Seager's individuality. This purpose has been fulfilled, for in this volume may be read as clearly as though graven on stone that the author of these papers was an untiring student of the factual basis of our economic life, an efficient and inspiring teacher, an effective worker in his chosen fields of social service, and a shrewd, aggressive, and courageous warrior in the cause of democracy.

CHARLES E. PERSONS

ECONOMIC RESEARCH BUREAU
WELLESLEY, MASSACHUSETTS

American Participation in the China Consortiums. By FREDERICK V. FIELD. Chicago: University of Chicago Press, 1931. Pp. xi+198. $2.00.

This little book is Mr. Frederick V. Field's response to a request that he prepare for the International Research Committee of the Council of Pacific Relations "a clear statement of the origins, purposes, and history of the Consortium agreements, together with some forecast of the possibility of the Consortiums being useful to China now"—certainly a very laborious task. He has modestly limited his aim to an attempt "to furnish the facts and to help in their analysis as a basis for discussion rather than to express his own judgment on the merits of the Consortium as a method of international action." Even this limited aim involved the examination of a vast collection of complicated and detailed documents, and Mr. Field deserves praise for the industry and understanding that have enabled him to give so much of the gist of the matter in his summary of the facts documented. He was confronted, too, with the need to indicate the frequently changing conditions in whose light the Consortium policy, like any other diplomatic policy, must at any given moment be appraised. The limitations which he himself set to his work left scant space for adequate discussion of the background, the shifting context, and the underlying philosophy of the Consortium policy; but the book will be found a convenient guide to

anyone seeking to enter the labyrinth of this particular phase of diplomacy in the Far East.

In rounding out his interesting discussion, Mr. Field has this to say in appreciation of the Consortium:

> In spite of Chinese hostility to the plan and in spite of certain weaknesses either inherent in it or in the broader relations of China to the foreign powers concerned, the new Consortium has not been ineffective. Just as with the early Consortium, the new combination was formed in the interests of the open-door doctrine and the integrity of China. Previous to the formation of both Consortiums, the principle of equal trade opportunity for foreigners of all nations in China was endangered.

The Chinese hostility referred to connotes the undiscriminating suspicion with which the Chinese have so often met the overtures of their friends; the disposition of those *enfants gatés* of the Orient to expect to "have their cake and eat it"—whether the cake be financial or political —to abolish extraterritoriality without reforming their courts and laws, to have tariff autonomy without abolishing internal transit duties (likin), to have foreign money without safeguards as to its wise and honest expenditure. Add to such considerations the political chaos and present lack of a central government paramount over the whole country, and it seems clear that it is only reform by the Chinese themselves, and not any Consortium or other policy on the part of China's friends, that can be particularly useful to China at present. Meanwhile continuance of the Consortium is justified if it can be an obstacle to improper loans to China, and if it can keep together a powerful group of the financial and economic leaders of the powers, ready to respond to any co-operative policies of their governments affecting the Far East.

During the years following the Russo-Japanese War there grew up a sort of equilibrium between Russia and Japan as the two powers intent upon actually dominating great regions in Manchuria and Mongolia. The heritage of the Hay notes left the United States in the dangerous position, on paper and by tradition at least, of lone champion of the "Open Door," China's integrity, and so on. To retire from this position and to assume instead a one-sixth share of interest in those formidable questions, was the most important matter of policy involved in the espousal by the State Department of the Consortium in 1909–13. The tendency of Secretary Stimson to get this country back into a rôle of China's knight errant and chief heckler of Japan tends to undo that good work. His forgetfulness of the rule that in diplomacy one never says "never" is likewise disquieting. American foreign policy should never be directed at anything but America's interests and

safety; American diplomacy should never grow too emphatic and definite unless it is ready to back up what it says—and it should never be ready to do that except in matters of vital importance (aside from legalistic, sentimental, or traditional considerations), and matters as to which it has a clear mandate from the country. Upon this point Mr. Field quotes Theodore Roosevelt's statement to President Taft: "I do not believe in our taking any position anywhere unless we can make good; and as regards Manchuria, if the Japanese choose to follow a course of conduct to which we are adverse, we cannot stop it unless we are prepared to go to war. . . . ."

The most important point in America's Consortium policy (avoidance of a lonely and quixotic championship of China) has been alluded to. As Mr. Field points out, the American government in 1909 brought "an American group of bankers into an international financial combination interested in China for the purpose of securing for its citizens commercial opportunities equal to those of other foreigners in China, to re-establish the open-door doctrine, and to preserve the integrity of China." More accurately, the object was to *maintain* the "Open Door." It was an arrangement designed to create a community of interests in China through great loans and development enterprises shared in by those powers, including Russia and Japan, whose aggressions were to be restrained, it was hoped, by a new self-interest in joint plans and by the participation with them of the four great powers not desiring further dismemberment of China.

The Consortium policy thus had as a cardinal principle the same idea that was expressed in President Wilson's hope ". . . . to make the whole world democratic in the sense of community of interest and of purpose." Next to the first duty of putting its own house in order, surely there is nothing a nation may promote that is a more practical contribution to peace and good will than this.

F. M. HUNTINGTON WILSON

HOPELANDS, WOODBURY, CONNECTICUT

The Street Railway in Massachusetts. The Rise and Decline of an Industry. By EDWARD S. MASON. Cambridge: Harvard University Press, 1932. Pp. xvii+222. $3.00.

Here is the record of one of the most interesting and significant of American economic phenomena—the rise and decline of an industry which from the day of its inception has been subject to control by

public authority. "In a sense," the author notes in his Introduction, "the returns . . . . are now in, the cards are on the table and the problem is not that which so frequently frustrates economic research, the lack of essential information; the problem is how to handle and present in intelligible fashion the mass of pertinent material which lies at hand." The street railway "has lived through the complete cycle of growth and decay and its life history remains to be written." Professor Mason has written that history capably. The study is pointed immediately to the street railway in Massachusetts (an excellent laboratory, by the way), but the implications of the analyses and conclusions extend outside the boundaries of Massachusetts, and sweep far beyond the limits of any single industry.

Separate chapters are devoted to financing, consolidation, costs as affected by density of traffic, costs historically considered, revenues (volume of traffic, fares, elasticity of demand, and competition), regulation, and public ownership. The reader is introduced to every significant phase and feature of the industry's turbulent forty years—reckless expansion, over- and unsound capitalization, fruitless consolidation, rising costs and rigid fares and declining demand, and receiverships; with regulation hovering constantly over the scene, alternately effective and ineffective, but always uncertain.

The conviction emerges that two institutions much in the public eye today—the holding company and commission regulation—have played a less praiseworthy part in these proceedings than might have been hoped for and expected by their respective supporters. Alleged economies of consolidation were not in fact forthcoming, and the net effect of the extensive use to which the holding company device was put seems to have been the preservation of many uneconomic properties and the disastrous burdening of many systems which unattached might have lived out useful lives. Commission regulation is confronted by an indictment containing charges of ineffective financial control, lack of foresight in rate making, usurpation of the functions of private management, failure to utilize fully the advantages of the Massachusetts method of "valuation," and the adoption even at the present time of policies which uneconomically retard the decline of the street railway and its replacement by other more satisfactory methods of transportation.

Professor Mason has prepared the type of study that is being demanded increasingly of economists. He has gathered his materials painstakingly and subjected them to vigorous and realistic treatment.

Tables and charts are skilfully constructed and the data are made to yield a surprising amount of information, important intrinsically and as raw material for the author's workmanlike elaboration and interpretation. True, there is an occasional statistical substantiation of the obvious, but this is a natural concomitant of thoroughness and for the most part, of course, new ground is broken. The approach throughout is temperate and discriminating; limitations of data and methods are explicitly recognized and the author has displayed exemplary self-restraint in the matter of critical "second guessing."

The reader, intrigued, may wish that Professor Mason had given more space to the economics and social implications of transport abandonment, that he had gone on to a fuller consideration of street railway and motor competition, and that he had been less modest in presenting his opinions on related and broader questions of transportation and regulation. But, to suggest shortcomings of this type is to praise. The author has made much of a splendid and, in many ways, unique opportunity.

BEN W. LEWIS

OBERLIN COLLEGE

Japan: An Economic and Financial Appraisal. By HAROLD G. MOULTON with the collaboration of JUNICHI KO. Washington: Institute of Economics of the Brookings Institution, 1931. Pp. xix+645. $4.00.

The bulk of this book is purely descriptive. It gives an account of the economic development of Japan up to 1930. Thanks to Mr. Ko, it is amply fortified with statistics. Anyone anxious to discover the external trade of Karafuto, or a recent balance sheet of the Bank of Taiwan, or the Japanese production of Portland cement, need only turn to the statistical Appendix, while the text itself is packed with figures. It is perhaps ungracious, amid this wealth of information, to sigh for a little more analysis. Yet when, for example, Mr. Moulton tells us (p. 58), "Notwithstanding her comparatively abundant resources, Japan has imported much more copper in recent years than she has exported. The explanation is that foreign copper bears a lower price," one feels that the explanation, although convincing, is not quite complete. Again the fact that "employers not infrequently pay wages to strikers during the actual period of a strike" seems to deserve fuller

comment, while the statement that "two drivers are found in taxicabs, not because of the requirements of the taxicab but because of the pressing need for employment of some kind," opens up new vistas of thought.

The great question, of course, is "how a country with a productive land area of only 23,000 square miles, about the size of the state of West Virginia, has been able to provide a living for upwards of 65,000,000 people." Japan has comparatively little coal or iron. Two-thirds of her exports, broadly speaking, are raw silk and silk-and-cotton tissues, and the United States and China have taken some two-thirds of the whole during the post-war years. Less than half the total population is rural, and "the Japanese family" apparently spends only 40 per cent of its income on food (p. 373), which suggests a standard of living approaching that of Western countries. Mr. Moulton promises to tell us how this is achieved. Doubtless he does so, but the present reviewer must confess that amid the forest of facts the flower he sought escaped him.

In the comparatively short final section, on "Problems and Policies Today," Mr. Moulton turns from detail to make two or three pronouncements. First, he says, financial stability is essential. "It is difficult to see how budget equilibrium can be maintained unless military expenditures are further curtailed and the interest charges on the public debt reduced." These words have an ominous ring today. "Second, there should be a general reduction in money rates if Japan is to find employment for her rapidly increasing labour supply." One would have thought reductions in wages more appropriate. Mr. Moulton seems to think interest rates could be reduced, on new loans, by decree. He points out that the volume of saving might not diminish much, but even if it would remain the same with interest at zero, surely the present rates would rule, owing to competition among would-be borrowers, and surely this would be necessary to determine where new savings could most profitably flow. Third, he wants "a nation wide system of good roads." Here one senses the possibility of conflict with his first criterion: of financial stability. Finally, "unless the rate of population growth is restricted, and restricted soon, the social outlook for Japan will present itself in somber colours." One fears that this is only too true.

FREDERIC BENHAM

LONDON SCHOOL OF ECONOMICS

The Cultural Significance of Accounts. By D. R. SCOTT. New York: Henry Holt & Co., 1931. Pp. viii+316. $2.50.

Professor Scott arouses great expectations by his title and Table of Contents, only to disappoint the reader bitterly as he proceeds. One expects an important idea; he finds "a series of snap-shots, as it were, upon which the reader is expected to exercise his imagination in constructing the outlines of an organized process of contemporary cultural evolution" (pp. 3–4).

The argument is that the "cultural philosophy," which produced a social organization around the market in the nineteenth century, is now giving way to a new "cultural philosophy" which will produce a new social organization, of which accounting will be the basis. Assuming that the purpose of economic theory is to describe the economic culture complex, the author concludes that, in the new cultural-organizational cycle which we have entered during the last half century classical economic theory must be disregarded (p. 234) and is likely to be replaced by a systematic theory of accounting control, which, however, "can be expected to make its appearance only at a somewhat later date" (p. 264).

"The cultural situation" and "cultural philosophy" are but the most frequently used of the thought-savers with which our author staves off his intellectual hunger. But such a diet unfits one for the hard work of tracing out causal relations and thus bringing intelligible order from a chaos of impressions. It is not illuminating but confusing to contrast the market and accounting as symbols of the economic organization of the nineteenth and twentieth centuries, respectively, for the two are not logically co-ordinate types of, or aspects of, economic organization. The reviewer is of the opinion that Professor Scott might have made his material more meaningful had he, for the purpose at hand, conceived of the economic organization of the twentieth century as differing from that of the early nineteenth chiefly in the manner and extent to which members of the economic group delegate to others the power to supervise the productive employment of the resources which "belong" to them. In so far as no one delegates power over his property to more comprehensive associations except that one intrusted with the task of keeping public order, the group must rely upon the market for whatever co-ordination there is. Recently, with the steadily increasing delegation of authority over resources to partnerships, corporations, trade associations, cartels, and the like, other co-ordinating devices have come to the front—although,

of course, the market is still, and, until we have an economic organization even more completely centralized than that of Soviet Russia, will continue to be, an important aspect of the situation, which aspect can be analyzed only by the detested market theory.

This movement of the past half-century has been accompanied by and made possible by the development of accounting technique and statistics, of internal as contrasted with external accounting; by the development of standards of responsibility of directors and officials to the organization; and by the development of various techniques of business management, particularly on the personnel side. Perhaps the author is right in viewing the various existing types of associative economic activity as steps toward even more comprehensive social control (p. 274). In any event it is quite appropriate to suggest that the success of more comprehensive control, from the standpoint of efficiency at least, depends upon the further development of the same management techniques and standards of responsibility which have in the past made possible successful large business units.

Professor Scott's own emphasis is somewhat different. The economic organization of the twentieth century, it is asserted, is to be explained largely as an expression of a new cultural spirit. This idea, obviously Sombartian, has genuine possibilities, but it would be more convincing if repeated less often and supported more by the presentation of relevant and carefully analyzed data. Others of Sombart's brain children are in evidence, but at times they seem strangely unadjusted in the home of their American foster-parent: The great German will smile at finding, in a book advocating a social system based on accounting (which to Sombart is the symbol of the rational "bourgeois spirit"), a rehearsal of his condemnation of socialism on the ground of its spiritual sterility.

A more important difficulty remains. A scholar, who presumably has centered his interest upon the historical development of accounting from a mere record of business transactions to an alleged instrument of administrative control, is the last we should expect to demand that economic theory of the classical tradition be disregarded. Whatever he may think of it as a social theory, it will be disastrous for the glorified accountant Professor Scott has in mind to close his eyes to the fact that it is for the very problems with which he is presumed to deal that classical economic theory is most useful. Historically, the extent to which accounting represents more than a classification of a chronological narrative of business transactions measures the extent to which

the ideas developed by classical–neo-classical economists have invaded the bailiwick of the bookkeeper.

The omission of a bibliography is a final disappointment.

LYLE BRYANT

UNIVERSITY OF BUFFALO

Social Economic Planning in the Union of Soviet Socialist Republics: Report of Delegation from the U.S.S.R. to the World Economic Congress in Amsterdam, August 23–29, 1931. By V. V. OBOLENSKY-OSSINSKY, S. L. RONIN, A. GAYSTER, and I. A. KRAVAL. Advance print from final Congress publication. The Hague: International Industrial Relations Association (I.R.I.), 1931. Pp. 158.

A Preface of ten pages by Dr. Mary van Kleek, United States vice-president of the I.R.I. and chairman of the Program Committee of the Amsterdam Conference, outlines the entire program as a setting and summarizes the argument of the Russian contributions. The papers of the four Russian delegates (a fifth, Mr. Cohn, did not give a prepared paper, but participated in discussion) deal respectively with "The Nature and Forms of Social Economic Planning," "Planned Economy in Operation," "The Planning and Development of Agriculture in the Soviet Union," and "Labor in Soviet Planned Economy." The papers are not very satisfying reading to an economist in search of answers to the questions he would like to have answered. It would, of course, be a difficult feat to put in words and figures a clear indication of what is being done in Russia, to describe the control organization and its mode of operation and results achieved. It would be enormously more difficult still to make possible any fair estimate by way of comparison of the Russian system with what is done in other countries or might have been done under Russian conditions by a system pivoted on private initiative instead of centralized direction. However, with all the large allowances made, both for inherent difficulty and for the requirements of oral or readable presentation in moderate compass, it must still be clear that the delegates did not attempt any of these tasks at all. Their aim was essentially that of propaganda, in their terms, "understanding" of the idea and aim of their system (p. 15). A large fraction of the space is taken up with debating arguments, mostly familiar long before the events which led up to the communist régime in Russia, and another considerable fraction with prophecy and claims for the future. It is con-

sidered self-evident that huge-scale agriculture is superior, without mention of quantitative limits or other boundaries. The senior author tells many facts about the organization and its procedure, but not enough or arranged in a way to give any notion of the whole. The other three papers are largely filled with statistical matter, chiefly in extended verbal form but with some tables. Again there is no evidence of a "plan" to convey organized information. In few cases are the figures referable to any common base so that comparisons can be made, either as to changes in Russia, or between Russia and other countries. Yet such comparisons are what the statements expressly purport to give, and this is the character of the entire content of the booklet. Most of the quantities are given in rubles, even international comparisons being stated in the same unit, yet there are in the four papers only two or three references to the value of the ruble, and those of an incidental and unilluminating sort. (One of these, p. 99, gives a startling anticlimatic deflation of preceding paragraphs, which incidentally do not seem to check arithmetically.) Where non-economic data are concerned, the same criticism holds as to lack of base. For example, the decreasing death-rates of factory workers are paraded (p. 146) with no reference to age composition, though earlier in the same paper (pp. 129 ff.) the rapid increase in the numbers was the occasion for pointing with pride, and it is not generally the aged or infants who leave the open country to take up industrial work. Figures for improved diet (pp. 115, 118) are inconclusive and raise question as to their source; those for education (pp. 131–32) show surprisingly little increase if allowance is made for growth of population and movement from country to town, which the figures given do not do. Of course, the general indication is one of rapid improvement. But the chief comparison left in the reader's mind is the contrast between the sort of data given in these papers and the sort which would certainly be necessary for effective continuous centralized control and check on a national economy of the size and rate of growth indicated.

FRANK H. KNIGHT

UNIVERSITY OF CHICAGO

The Labor Problem in the United States. By E. E. CUMMINS. New York: D. Van Nostrand Co., Inc., 1932. Pp. xiii+857. $3.50.

Professor Cummins' volume is interesting and clearly written. It has the virtue of being largely devoted to analyses and interpretations of the topics it discusses, and contains running evaluations of the prac-

tices and theories of the parties to the labor struggle. The author does not hesitate to criticize employers, unions, and the courts when such criticism seems justified. The last chapter presents a courageous and straightforward analysis of the money motive, and an evaluation of the activities of unions and employers in terms of it. The reviewer has recently finished a semester in which this volume was used as a text in a course in trade-unionism. The students considered it a good textbook. It presents sufficient factual material; yet it does not suffer from the difficulty which so often characterizes a textbook, that the student is so overwhelmed with detail that he does not see the significance of the problems discussed.

Despite the general high quality of the volume, it is marred by several flaws which should be avoided in future editions. The scope of the volume hardly justifies the title. It by no means covers all important aspects of the labor problem. Such matters, for example, as women's labor, child labor, and convict labor, are very briefly discussed. There are good discussions of unemployment, hours of labor, the human toll of industry, income, protective labor legislation, and social insurance. All of these matters, however, take up only about 220 out of more than 800 pages of text. The remainder of the volume covers trade-unionism and the activities of employers, especially their attempts to avert the organization of unions.

The volume lacks a bibliography. There are no lists of suggested readings at the end of each chapter. The last three quarters of the volume have comparatively few references to authorities. To ambitious students such lacunae are distinct handicaps.

There are also a number of minor errors which should be corrected. It is hardly correct to say, as the author does on pages 185 and 230, that the American Federation of Labor has been "bitterly opposed" to the Amalgamated Clothing Workers from the beginning. This is surely true of the attitude of the United Garment Workers toward the Amalgamated. Many of the unions affiliated with the Federation, however, have had cordial relations with the Amalgamated, and the attitude of numerous Federation officials cannot be described as one of bitter opposition. On page 323 the International Ladies' Garment Workers Union is incorrectly said to be "strictly a women's union." On page 367 it is said that no appreciable progress has been made in the Federation's attempt to secure legislative protection from the competition of convict labor. Yet the past few years have witnessed the passage of important legislation of this nature by Congress and by some of the

state legislatures. Whatever may have been the truth ten years ago, it is not accurate to imply, as is done on page 398, that the Amalgamated Clothing Workers' program of workers' education is still one of the most important phases of its activity. On page 591 it is said that the Danbury hatters had the sum of $300,000 levied upon them by the Supreme Court. The court's award was about $50,000 less than that amount. On page 643 mediation is incorrectly described as a method of settling disputes whereby the disputants come together of their own desire (i.e., without the intervention of a third party).

EDWARD BERMAN

UNIVERSITY OF ILLINOIS

Canada. By ALEXANDER BRADY. New York: Charles Scribner's Sons, 1932. Pp. vii+374. $5.00.

This is a cool, dispassionate analysis of the political, cultural, and economic elements that make up the life of the Dominion of Canada. Professor Brady has achieved a well-balanced and objective survey of his own country; only a citizen of that country acquainted with its lack of scientific studies in so many special fields can appreciate how difficult the task must have been. But in trying to be objective he has banished nearly all color from his work. The book is not as spirited a piece of writing as are the companion studies in the "Modern World Series" on South Africa and Australia, and it is without the cheerful irony which makes Hancock's *Australia* one of the best studies in the series.

"Canada is distinctly a country in the making. In this fact I found the chief difficulty of my task." These are the opening sentences of the book. Professor Brady analyzes the forces that are contributing to the making of a Canadian civilization. The main trend of his conclusions is to emphasize in each special field the balance of forces which prevents the emergence of any very clear-cut characteristics in Canadian life. "It is a truism that the federation was a compromise, and the cardinal fact of the nation which it helped to create is compromise." This fact comes out in each of the chapters which he devotes to constitutional and political structure, the working of the party system, questions of population and immigration, labor, agriculture, the growth of industry and commerce, cultural life, and external relations. On each of these topics the reader is given a very competent survey of the problems which face Canadians at present. While one may differ with the author on some particular statements, his judgment on the whole seems

sound and realistic. He is completely free from the two romantic tendencies, to one or the other of which most Canadians are prone—one, that of being dazzled by the size of the country's resources; and the other, that of seeing the Dominion as a heroic outpost of British institutions on this continent.

What emerges from the book is a picture of a community essentially North American in its problems and in its methods of tackling them. If Professor Brady had drawn the parallel between Canada and the United States more fully his book would have been clearer. One does not get from the book the feeling that the Canadian experience has been particularly significant or vital or distinctive. Whether the author intended this negative conclusion to be drawn or not, it is no doubt the correct conclusion which would emerge from any objective analysis of Canadian development up to 1932.

FRANK H. UNDERHILL

UNIVERSITY OF TORONTO

The Labor Movement in Post-War France. By DAVID J. SAPOSS. New York: Columbia University Press, 1931. Pp. xviii+508. $6.00.

Mr. Saposs has added another volume to the series of "Social and Economic Studies of Post-War France." It is a painstaking, thorough, and competent account of the labor movement in all its phases. While other studies have been limited to the trade-union field, Mr. Saposs has added substantial chapters on labor legislation, the post-war policies of employers, the co-operative movement, and labor in politics.

This completeness adds to the utility of the book, but the exciting chapters are those dealing with trade-unionism. For therein is set forth the dramatic reorientation which transferred the control of the trade-union movement from the revolutionists of pre-war days to a moderate element whose program much more nearly approaches the normal trade-unionism of Western Europe.

Before the war the Confédération Générale du Travail sheltered both revolutionists and reformists. The revolutionists, with their policies of anti-militarism, the general strike, and resolute hostility to the state, had control of the machinery; but the reformists were always strong and never ceased to hope for a change. Indeed, there is ground for believing that they constituted a majority and were only kept from power by the peculiar system of representation in the C.G.T.

And even before the war, the ill-success of the general strike had weakened the appeal of the revolutionists.

The war and the Russian revolution made for great changes. The necessity of co-operating in the war broke down the anti-state, anti-militarist attitude that was the foundation of the revolutionist program. Moderate men came to power; and when the war was over, fortified by the dubious results of Russian violence, they retained their control. In 1921 the revolutionists, seeing their power gone, seceded from the C.G.T., to form a new and rival body, the Confédération Générale du Travail Unitaire, which is now the recognized exponent of revolutionary principles in France.

Thus two rival organizations, instead of two parties in one organization, now solicit the support of the workmen. The dominant group, some 750,000 strong, inheriting the pre-war organization of the C.G.T., are moderate and reformist. They have lost faith in violence. They are not anti-militarist, nor are they opposed to co-operating with the state. They do not advocate the general strike as the engine of revolution. But they still stand for organization in the workshop rather than in the political party, and still retain the typically syndicalist belief in a new industrial order founded on the labor unions. The revolutionists of the C.G.T.U. claim some 400,000 adherents. They are strong in the areas and industries where revolutionary syndicalism was rampant before the war. But they are communists, not syndicalists. They renounce the general strike and look to social revolt to bring about the revolution. Lenin, not Proudhon, is their prophet. The rest of French trade-unionism is largely found in the strong Catholic federation, with some 100,000 members. The anarchists and the true syndicalists, those colorful pre-war exponents of violence, still remain but, for the moment, are negligible both in numbers and influence.

Whether these groupings will remain, or whether a new turn of the wheel will bring back to domination the revolutionary elements that one used to regard as native to France, only the future can reveal. But for the time, as Mr. Saposs has so admirably shown, the results of the war and current industrial developments in France favor the moderates. Business unionism is the order of the day, and this is not easy to reconcile with revolutionary activity.

Mr. Saposs has written an effective book. It is the most complete treatment of the post-war French labor movement, in all its aspects, now available in English.

J. A. Estey

Purdue University

The Gold Standard and Its Future. By T. E. GREGORY. New York: E. P. Dutton & Co., Inc., 1932. Pp. viii+115. $1.50.

This is a rarely good book. One might observe that it contains nothing new; indeed, that it only expounds a kind of theory with which every economist should be thoroughly acquainted. To emphasize this, however, would serve only to aggravate what is already an alarming situation in criticism and in economic writing generally. Professional economists display an amazing tolerance of amateur, journalistic economics, much of which is generously praised, presumably because it evidences some insight where none was anticipated. On the other hand, they bestow warm praise only upon brilliantly unclear writing, upon works which specialists alone will pretend to understand—and even they not in the company of their peers.

In these circumstances, a clear, cogent, pointed essay such as Professor Gregory has written is likely to receive inadequate attention. There are in it no brilliant dialectical flights; no concepts loosely defined and algebraically manipulated; no mystical averages slipped innocently into amazing equations. One finds only elegant, straightforward exposition of how the gold standard works, with special reference to recent English experience and the English monetary problem of the near future. The author has rendered a real service in presenting clearly and concisely a kind of economics which is indispensable to understanding of current problems, here as well as in his own country. Incidentally, the book is likely, in the reviewer's opinion, to prove quite useful as an assignment for intermediate students; and it may be recommended to the layman, and to many economists, as an antidote to most of the currently popular analyses of our present difficulties.

The reviewer has detected relatively few flaws of even minor character. The paragraph beginning on page 13 suffers from some infelicities of statement and some omissions which seem hardly justified by effort at conciseness. The propositions on pages 64 and 65 are not happily stated in terms of relative *intensity* of international demand. On page 79, "revenue" should read "reserve." The unintelligible sentence at the bottom of page 95 may have resulted from the printing of "investment" instead of "adjustment."

H. C. SIMONS

UNIVERSITY OF CHICAGO

The Way out of Depression. By HERMANN F. ARENDTZ. Boston: Houghton Mifflin Co., 1931. Pp. xii+105. $1.00.

The title of this volume should be *The Way out of This Depression*, for the author does not propose a remedy for all depressions. He does not favor the prevention of all depressions, but believes (p. 90) that "so far as business depressions are the natural reaction from, and the correction for, the evils and excesses of boom periods, they cannot—and ought not—to be prevented." The difference between this depression and the others is stated near the end of the book. International bimetallism, the author's proposal, is intended to correct only that part of this depression which is due to the falling price level, for (p.100)

> . . . . we are suffering from two concurrent depressions: the one a financial crisis brought on by speculative excesses. . . . . The other and more serious development is a long, grinding business depression caused by a falling price level. This falling price level is itself the result, not of general overproduction, but a shrinking of demand, due, in turn, to a failure of world purchasing power to keep up with the normal increases of production to be expected in a growing economic world.

The author fails to distinguish between a negative trend in the price level and a falling price level. There is a falling price level in every depression (and a rising price level in every recovery), but since 1920 there has been a negative trend in the price level as well. The author does not point out why the negative trend has affected this depression more than the one in 1920. He gives one the impression that business men cannot adjust their operations so as to make a profit in spite of a negative trend in the price level, evidently overlooking the fact that there were periods of prosperity from 1865 to 1896 when there was also a negative trend in the price level. Although he does not say so, the author seeks to eliminate the fifty-year cycle in the price level which reached peaks in 1814, 1865, and 1920. His proposal would stop the decline now under way, but he does not indicate how a rapid rise in the price level would be prevented. Evidently, whenever the price level begins to drift downward, some new plan will have to be adopted, but with silver remonetized, the price level would have a positive trend for some years to come!

The book is well written and interesting. Its brevity is commendable, but it is carried too far. To prove his point the author would have to compare this depression with others and show that this one is substantially different.

HARRY PELLE HARTKEMEIER

UNIVERSITY OF MISSOURI

A Guide to Birth Control Literature. A Selected Bibliography on the Technique of Contraception and on the Social Aspects of Birth Control. By NORMAN E. HIMES. London: Noel Douglas, 1931. Pp. 46. 3*s.* 6*d.*

This pleasingly printed little volume is a useful addition to the scholarly literature on birth control, which Professor Himes has already done so much to extend. As the title suggests, it furnishes a "guide" to the student—whether physician or social scientist—rather than an exhaustive bibliography for the scholar.

The items listed fall into two major categories: those dealing with technique and those concerned with the economic and sociological background of birth control. It is, perhaps, with regard to the first that Professor Himes' work has most significance, for on the practical side the problem of technique has been subjected to severe criticism. With this list available there is no excuse for ignorance of the progress that has been made along those lines in recent years. The bibliography dealing with social aspects of the problem indicates the basic literature with which every serious reader as well as every student would wish to be familiar. The annotations will prove useful to those who are finding their way in the field.

HELEN FISHER HOHMAN

EVANSTON, ILLINOIS

Groot- en Kleinhandelsprijzen in Nederland en Belgie (Wholesale and Retail Prices in Holland and Belgium). Vols. I, II. By A. J. W. RENAUD. Haarlem: De Erven F. Bohn N.V., 1931. Pp. vii+104 (Vol. I); (Vol. II) unnumbered tables.

This is the first publication of the new institute for economic research established in the Graduate School of Business (Nederlandsche Handelshoogeschool) at Rotterdam. The intention of the authors was to provide material for a comparison of the standard of living in Holland and Belgium. Price statistics turn out to be peculiarly misleading because of differences in the quality of both commodities and services in even a limited geographical area. Differences in the social services, housing legislation and subsidies, use of co-operatives, and similar significant features of the "standard" of living are developed with a wealth of detail. If any further evidence was required to increase skepticism with regard to the usual superficial wage and price index comparisons of standards of living, the authors have supplied it in generous

measure. This study supplements in many ways Bulletin No. 22 (June, 1930) of the Social Science Research Council in which international wage comparisons are discussed primarily with reference to Canada, France, Germany, Italy, the United Kingdom, and the United States.

HARRY D. GIDEONSE

UNIVERSITY OF CHICAGO

Sozialökonomische Theorie des Geldes. By JUNICHI OHNO. Leipzig: A. Deichert, 1931. Pp. ix+130.

Had this book appeared fifteen years ago it would probably have enjoyed in Germany the enthusiastic popular reception and the warrantably depreciatory academic criticism accorded to the pamphlets of Friedrich Bendixen, Karl Elster, and Kurt Singer, whom Professor Ohno takes as his models. Nowadays almost everyone is weary of these banalities. Perhaps one may agree with the nominalist idea of money as a claim or ticket; but one will scarcely be patient enough to read again such meanderings as concern "Concept Formation in Economics and the Concept of Money," and the scholastic hairsplitting as to whether money has value or not. The third section of the monograph devoted to "The Dynamic-Quantitative Money Problem" sets forth a rudimentary quantity theory, but does not hesitate to adopt also the ancient banking theory notion that bank credit based on first-class commercial paper adapts itself automatically to the needs of trade (pp. 116–18). Ohno does indeed raise significant objections to the Schumpeter type of quantity theory dealing only with consumers' goods and income (p. 101). But for the most part, the book is either astoundingly elementary or ponderously erudite about nothing.

HOWARD S. ELLIS

UNIVERSITY OF MICHIGAN

The Departments of the American Federation of Labor. By ALBERT THEODORE HELBING. Baltimore: Johns Hopkins Press, 1931. Pp. xii+137. $1.25.

In setting forth the results of his research, particular attention is paid by the author to this question: Have the Departments which include related trades been instrumental in strengthening any tendency toward industrial unionism? Because the Union Label Depart-

ment is organized on a somewhat different basis from the other departments and is concerned with different concrete objectives, it receives relatively brief attention. Since the Mining Department has ceased to exist, it also receives limited space. From his examination of records and his conversations with both Department officials and those of national unions, Dr. Helbing finds little evidence to support the view that the Building Trades, Metals Trades, and Railway Employees departments have afforded encouragement to the advocates of industrial unionism. In varying degree their activities have centered on keeping local councils in check, aiding in the settlement of jurisdictional disputes, fighting "dual unionism," engaging in legislative lobbying, and in other standard ways following a procedure congenial to the point of view of the dominating trade-unions in the American Federation of Labor. "As a matter of fact, the Departments are merely smaller editions . . . . in separate industrial fields, instead of the whole field of labor . . . . of the American Federation of Labor" (p. 134). The only qualification one might care to offer to this interpretation is to state that while it appears to be an adequate description of past experience, there is perhaps reason to believe that the three leading departments contain latent potentialities for industrial unionism not possessed by the Federation as a whole. How much of a jolt is required before the labor movement is receptive to the desirability of organic structural changes is of course unknown. Conceivably this end will be achieved only through the anarchy of complete disruption. But there is a possibility that the intensity of the existing depression will supply the needed shock—needed, that is to say, if unionism is to be more significant than an agency for strengthening the advantages of skilled workers.

LYLE W. COOPER

MARQUETTE UNIVERSITY

Statistical Year-Book of the League of Nations 1931–32. Geneva: League of Nations, 1932. Pp. 342. $3.00.

This international synopsis of available statistics relating to economic, financial, demographic, and social phenomena is becoming more useful with every new edition. Among the new features are the League's own world indices of output of raw products, tables on balances of international payments, on the world production of motor vehicles, broadcasting, narcotics, and a greatly improved record of un-

employment and of employment by industries. The demographic tables are more comprehensive than in previous editions and also take account of 1930 and 1931 censuses. The Appendix includes a number of maps which seem of rather doubtful usefulness. It might be well to substitute the maps drawn for the World Economic Survey on the decennial rate of increase in population in some future edition.

HARRY D. GIDEONSE

UNIVERSITY OF CHICAGO

The Five-Year Plan of the Soviet Union; a Political Interpretation. By GREGORY THEODORE GRINKO. New York: International Publishers, 1930. Pp. 339. $3.50.

Written by an important functionary of the Soviet government, this volume is an official presentation of the essence, purposes, and scope of the Five-Year Plan. But it is also more than that. The reader will find in the volume, in addition to a description of the economics of the vast enterprise undertaken by the Soviet régime, a brilliant discussion of the political and cultural setting into which the communist leaders are attempting to fit their work of industrial and agricultural reorganization. Whatever one's views on the feasibility of the Five-Year Plan and its basic importance for Russia and for the rest of the world, one should not, if one is really interested in the subject, fail to read this book. It is to be hoped that some day Mr. Grinko, who was vice-chairman of the State Planning Commission of the U.S.S.R. at the time he wrote this book and is now Commissar of Finance, will give us as interesting an account, from the official Soviet point of view, of the results of the Plan.

LEO PASVOLSKY

BROOKINGS INSTITUTION

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2